



FOQA and ASAP Score Real-World Results

► Even in the airline industry, \$100 million ain't exactly chump change—and that's how much a major U.S. airline saved *in one year* by drastically reducing the rate of takeoff overtemps on CFM56-3 engines—from 46 overtemps in 1998 to just 6 in 1999. That's \$100 million less that the airline's management had to dig out of the employees after 9/11.

How'd they do it? Short answer: The airline had in place a Flight Operations Quality Assurance (FOQA) program. That program involves collecting objective data from the digital flight data recorder (DFDR) of many airplanes during regular line operations, then examining aggregate data on a number of different parameters—e.g., EGT, N_1 , thrust lever angle, and autothrottle engagement status (i.e., on or off)—to catch trends in operational safety.

One of the airline's power plant engineers used FOQA data from a couple of hundred takeoffs to discover a flaw in the autothrottle system software logic that caused the CFM engines to exceed target N_1 as they spooled up. At roughly \$2.5 million a pop for engine replacement and hot section teardown, reducing the takeoff overtemp rate saved some serious coin.

FOQA has produced significant improvements in both airline safety and, as in the previous example, airline economics. But what about the considerable amount of information to be gathered from the folks operating the airplane? To harness the power of that resource, the FAA in January 2000 officially established the Aviation Safety Action Program (ASAP) as the nonpunitive safety reporting system for the U.S. airline industry.

The ASAP concept has its roots in the alarming increase in altitude deviations that USAir (now US Airways) experienced in the summer of 1990. Pilots and ALPA safety repre-

sentatives became concerned about the sharp increase in altitude deviations by USAir flight crews.

ALPA, USAir, and the FAA jointly developed the USAir Altitude Awareness Program, which gave pilots limited relief from enforcement



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action for reporting altitude deviations and their causes. That groundbreaking effort broke the trend and reduced altitude busts to a small fraction of the previous rate.

US Airways was one of the first U.S. airlines to develop an ASAP. While the FOQA success story regarding engine overtemps given above serves as an excellent example of a safety (and economic) problem that could be dramatically reduced by a one-time solution, the US Airways ASAP program provides a great example of the fact that some safety concerns—in this case, altitude deviations—often stem from so many causal factors that they don't lend themselves to quick or simple fixes.

In February 2001, the airline issued its first ASAP safety bulletin to pilots, when the ASAP had been in effect less than 5 months. The US Airways ASAP Event Review Committee was made up three representatives—one from ALPA, one from management, and one from the FAA. They had reviewed more than 1,300 ASAP reports that pilots had submitted and discovered “a significant increase over the past 12 months in altitude deviations.” The ERC alerted pilots to five similar causal factors, listed in the order of frequency, and offered four specific recommendations for pilots to use to reduce altitude deviations. The pilots and their airline drove the altitude deviation rate down again.

The union-wide ALPA FOQA/ASAP Project Team participated very actively in the original FOQA and ASAP Aviation Rulemaking Committees, government/industry groups given the authority to hammer out consensus agreements in important specific regulatory issues. The ALPA Project Team currently consists of Capt. Hank Yaap (Alaska), chairman, John Buchan (Continental), John Parsons (Delta), Dan Sicchio (US Airways), and Jim Smith (United). Two Team members serve on the FAA's Voluntary Safety Information Sharing (VSIS) Aviation Rulemaking Committee. The Project Team monitors all

FOQA and ASAP activities closely.

Supporting ALPA's Project Team is Don McClure, a retired Eastern Airlines B-727 captain who now works as a staff engineer in ALPA's Engineering and Air Safety Department. McClure played a pivotal role in developing and midwifing the USAir Altitude Awareness Program, the predecessor of today's ASAPs, and served as the chairman of the ASAP Advisory Circular Working Group in drafting and editing the language for the FAA advisory circular on ASAPs issued in 2000 and an updated version in 2002.

Over the last 4-5 years, McClure has made presentations on FOQA and ASAP to many pilot groups, their senior managements, and the appropriate FAA officials who work with that airline.

"Usually the central air safety chairman, plus MEC members, will call us to find out how to implement or establish the programs," McClure explains. "We arrange to give a presentation at the airline—not just to the [FAA] principal operations inspector and the vice-president of flight safety, but to all the relevant departments—Flight Ops, Flight Safety, Flight Training, Dispatch, Engineering, Inflight Services.

"Also," he says, "it's important to get the CEO or COO to participate. If you can get a CEO or COO to come in and sit down for the presentation, it sends a very big message down from the top."

The FAA has approved 13 FOQA programs at U.S. airlines; 9 of those are in place at airlines whose pilots are represented by ALPA. Of the 50 ASAPs established at U.S. airlines, 40 involve pilot groups, and 29 of those are ALPA pilot groups.

McClure notes that more ASAPs have been implemented than FOQA programs because the latter are more

expensive. But the major airline's CFM56-3 engine overtemp case shows that a mature FOQA program can more than pay for itself.

In addition, these programs can—and do—benefit the broader airline community.

You Need ASAP (and FOQA), and ASAP Needs You!

"If your airline doesn't have an ASAP or FOQA program, ALPA can help you establish one. If you have an ASAP, keep submitting those reports—they're the backbone of the program." —*Capt. Terry McVenes (US Airways), ALPA Executive Air Safety Chairman*

Another success story: For years, many pilots who regularly flew jets into Orlando International Airport (KMCO) knew that a visual approach to land to the south at KMCO was a setup for an unstabilized approach: Because of the way the FAA had allocated airspace to KMCO and nearby Orlando Executive Airport (KORL), approaches to KMCO's Runway 18R and 18L had to cross the Orlando VOR (ORL), located on KORL, at or above 2,500 feet MSL—while only 5.7 DME from the KMCO Runway 18L/R threshold. The situation begged local knowledge—i.e., you'd better get the airplane slowed down and dirty early if you didn't want to be high and hot over the fence.

Today, however, these problematic approaches to KMCO have been made right: The FAA reallocated the local airspace to permit crossing ORL at a lower altitude and, with input from ALPA and other user groups, devel-

oped a charted visual FMS approach for KMCO's Runways 18L/R.

What led to these changes at Orlando? Again, FOQA—in this case, "a byproduct of the analysis of FOQA from several airlines," explains McClure. "And the FAA intends to apply this same method to develop charted FMS visual approaches at a number of other airports with a history of unstabilized approaches.

"Pilots would submit reports to the chief pilot's office about real-world operational problems they'd seen, such as the visual approaches to the south at Orlando, but after seeing that nothing changed as a result, they'd stop writing them up," McClure recalls. "Now, with FOQA and ASAP well established at U.S. airlines, and managements communicating the results of the programs back to employees, pilots have seen that the FAA and the airlines are not abusing the confidentiality and immunity protections built into these programs and that the programs are bringing real results in the real world."

These data-gathering programs, McClure points out, "help you identify the problem, develop the fix, and monitor the effectiveness of that fix."

McClure describes ASAP as "a five-way win: It's a win for the crew involved in the incident, because they're allowed to participate in developing a solution to the problem—versus getting their hand slapped, as in the old days. It's a win for the rest of the flight crews at the airline, because a safety risk is brought to light and resolved. It's a win for the airline, because it has an obligation to operate with the highest degree of care and safety. It's a win for the FAA, which has the job of ensuring safety. And it's a win for the traveling public, because we're building a safer air transportation system." —*Jan W. Steenblik, Technical Editor*