



# FLAWED Training

Explaining how flight crews mishandle aerodynamic stalls is a tough job in no small part because it must be admitted from the outset that the skills needed to survive stalls are rudimentary, taught from the beginning of flight training. With that fact given, how does one explain repeated events, often fatal, in which highly experienced crews fail to perform this most basic maneuver?

Well before the recovery of the flight data recorder (FDR) and cockpit voice recorder (CVR) from Air France Flight 447, the Airbus A330 that two years ago crashed in the South Atlantic, the industry was taking note of numerous accidents and incidents in which an aircraft stalled and its crew mishandled the event. With FDR/CVR data showing that AF447 was a flyable aircraft in a stalled state, nose-high, falling all the way to the ocean from 38,000 ft in just 3 1/2 minutes, the need is even more pronounced for redoubled industry efforts to fix training flaws that have allowed these things to happen.

Those who attended our European Aviation Safety Seminar (EASS) in Istanbul, Turkey, earlier this year, or read my story about it (*ASW*, 4/11, p. 46), know that the basic elements of the discussion were in place even before the AF447 data were recovered. Those data, I suggest, simply reinforce what was already

believed about the problem, with perhaps a bit more emphasis on the role automation can play in triggering, confusing and obfuscating a very hazardous situation.

Industry consensus seems to be that traditional training for avoiding stall onset and for recovering from a stall has been, essentially, full power, wings leveled, speed brakes retracted and minimal pitch angle reduction. The goal of this procedure is to minimize altitude loss. In real life, however, this training event had become a stylized kabuki dance, more focused on correctly setting up the approach to stall situation than anything related to actual flying. As Paul J. Kolisch, Mesaba Airlines supervisor, flight operations training, said at the EASS: “Pilots have had more difficulty satisfying evaluators with the setup than with the stall recovery. The training is akin to synchronized swimming: It requires a good deal of skill and preparation but has nothing to do with swimming safely across a river.”

Clearly, minimizing altitude loss only becomes important after the airplane resumes flying, so dropping the nose becomes of primary importance in breaking the stall. Then, since aircraft with engines mounted on pylons under the wing can cause a pitch-up during the application of takeoff/go-around thrust, the new advice

is “power as appropriate”; in some situations — such as a stall at high-altitude cruise — a reduction in thrust may be more appropriate.

That there was confusion in the AF447 cockpit is implied by the lack of coordinated recovery techniques despite the presence of three qualified pilots, including the high-time captain, and the uninterrupted operation of most of the instruments — which did not prevent the aircraft for much of its fall to the ocean from being in a nose-high attitude in excess of 16 degrees and an angle-of-attack of 35 degrees.

I know this is repeated material for many of you, but I believe the importance of assuring widespread dissemination of this information means I will risk boring some of my audience to get it out there. Airbus and Boeing have already changed their stall training recommendations; clearly, everyone should re-examine their training programs to make certain this flaw is corrected.

A handwritten signature in black ink that reads "J.A. Donoghue". The signature is fluid and cursive.

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