

Myths and Training



This is not a column I like writing, and I know I am going to upset some people, but I have to comment on the recent release of more preliminary information regarding the crash of Air France 447, the Airbus A330 that fell into the Atlantic Ocean two years ago. The investigators have given us a clear idea of *what* likely happened and the sort of recommendations they will make when the final report is issued. The difficult part now is to understand *why* this tragedy happened and do something about it.

I spent two days with Airbus test pilots, accompanied by Foundation Executive VP Kevin Hiatt, trying to understand the nuances of envelope protection and failure modes. We spent some time going over the accident timeline and then flew the accident scenario in a simulator. I came away with a number of impressions.

First, I was amazed at how benign the initial failure really was. Some electronic centralized aircraft monitor (ECAM) messages, an autopilot disconnect and some bad speed indications. All of this happened in light turbulence, and lasted for less than a minute. The only response needed was to manually fly the same attitude the autopilot had been flying for hours. It should have ended with a logbook entry. Instead, there was an aggressive pitch up resulting in a 7,000-fpm climb, followed by a series of pitch-up commands that eventually resulted in a stall. These were not small or inadvertent commands. When airspeed numbers came back they were so low they looked erroneous. In fact, the airspeed dropped so low the stall warning was disabled. This had to be confusing. When stick backpressure was released, the aircraft accelerated a little bit and the warning came on again. This kept up all the way to the ocean.

So now we have to try to understand why all of this happened. We can never know what the accident pilots were thinking, so we are stuck

making some guesses to help others avoid the same mistake.

Did they think they were at risk of a high-speed stall? Was this a real risk, or was it mythology? Test pilots will tell you it is very hard to get into a high-speed stall in a modern aircraft. Do crews understand this, or do they get their high-altitude aerodynamics lessons from dog-fighting shows on the Discovery Channel, or old textbooks written about the Boeing 707?

Perhaps the AF447 crew was trying to fly the stall scenarios they practiced at low altitudes. Stall training historically has focused on minimum altitude loss. Some pilots will even tell you they rely on the envelope protection to fly them out. Just go to TOGA (take off/go around power) and pull back. Let the airplane do the rest. The manufacturer will tell you that this is not the right procedure to use at altitude. Instead, pilots are encouraged to trade altitude for speed by reducing the angle of attack. Has this philosophy made it into simulator training, and more importantly, has it become the new norm on the line?

This tragedy compels us to ask some tough questions about training. Do we spend so much time driving simulators around at low altitudes with one engine out that the real risks are only discussed in the break room? This issue extends far beyond Air France and Airbus; it is about an industry that has let training get so far out of date that it is irrelevant, and people are left filling in the blanks with folklore.

A handwritten signature in white ink that reads "William R. Voss".

*William R. Voss
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