



## Real-life upset training for jet pilots – in a jet

by Mark Phelps

Lee Lauderback conducts upset training in a comprehensive program designed specifically for jet pilots. Best known for his warbird training and support company, Stallion 51 just down the road in Kissimmee, Fla., Lauderback decided a few years ago that crews of corporate jets with glass panels ought to train in something similar to what they fly for a living.

As a veteran corporate jet pilot himself (former chief pilot for Arnold Palmer), Lauderback established his unusual-attitude training program branded as UAT (Booth 4073). The logo even has a stylized “A” printed upside down.

He chose the Aero Vodochody L-39 Albatros, a former Eastern bloc military trainer, as his platform, retrofitted with a modern Garmin G600 EFIS glass panel.

Upset training has gotten a lot of attention over the past few years, and business aviation has joined the chorus acknowledging an insidious degradation in basic stick-and-rudder skills. We’ve learned that years of highly automated push-button flying can cause fundamental flying skills to atrophy from lack of exercise, and when a situation unexpectedly arises calling for simple seat-of-the-pants instincts,

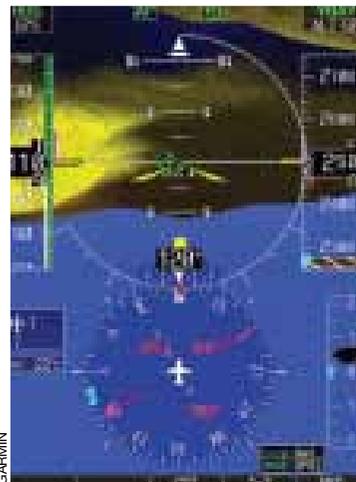
the muscle memory might have become a little flabby.

One recognized antidote is some remedial flying to reawaken those long-dormant skills. While light-aircraft pilots are more likely to be proficient at stalls and other unusual attitudes, it’s probable that a jet pilot may have experienced such maneuvering only in a simulator. Though full-motion simulation can provide sweat-inducing realism in many emergency flight scenarios, getting turned upside down is not one of them. The best place to address that and other unusual attitudes is in a real airplane



It's not exactly a business jet, but UAT's L-39 provides a fitting platform for corporate pilots' upset training.

PHOTOS: PAUL BOWEN EXCEPT WHERE INDICATED



What you don't want to see on your PFD. It helps to have been there, done that.

designed for the task, with an experienced instructor.

That has led to the promotion of many excellent upset-training programs using light aerobatic piston aircraft, such as Citabrias, Extras and Pitts Specials. Some are operated by well known airshow performers and other experts at teaching aerobatics. Some corporate pilots respond to the exposure better than others. Lauderback said that even some former military pilots, who certainly had their share of yanking and banking “back in the day,” find themselves shying away from such training out of a nagging fear over how they will respond.

He refers to the UAT program as “envelope expansion” for the pilot—taking him or her outside the comfort zone, but a little at a time, and only as far as the pilot wants to go. UAT instructors know that g-tolerance is an acquired skill, and are unlikely to exceed their students’ comfort level



Unusual attitudes are the natural habitat for a military jet trainer, such as the L-39 Albatros. Experiencing this type of flying in the context of day-to-day operations can save your bacon in an emergency.

for aerobatics. That is not the core of the mission, and Lauderback’s program takes the upset-training mission even a step further for business jet pilots.

### Prep for Upsets in All Conditions

One of the distinctions in the UAT syllabus is that it includes upset training under instrument meteorological conditions (IMC) as well as visual conditions. The L-39 has a canopy hood for simulating cloud flying. “Our upset prevention and recovery training program definitely raises the bar even higher for pilots who fly for a living and under all types of conditions,” said Lauderback. Bellying up to that higher bar involves three phases, and like most aviation programs, it starts with ground school.

The first segment covers aviation physiology. All pilots learn in primary training how the inner-ear fluids can fool the brain as to which way is up and down when visual contact is lost. In the UAT syllabus, retired U.S. Navy flight surgeon and senior FAA medical examiner Dr. William Busch explores what causes a pilot to become spatially disoriented, how to identify the condition and the best strategies for overcoming the problem.

The next phase of chalk talk studies the aerodynamics of upsets; how to prevent them; and recoveries. The briefings include exposure to UAT’s list of definitions, envelopes, V-G diagrams, the benefits of zero-g, power management and optimum recovery techniques.

Then it’s out to the aircraft for the initial VFR segment. UAT offers the option of conducting this segment in the Albatros, or in one of Stallion 51’s dual-control P-51 Mustangs. While the jet is no doubt more applicable for a career turbine jockey, the chance to fly a Mustang might trump that card. Just be sure to clear it with the boss, or you might be accused of succumbing to personal bucket-list temptations.

The VFR segment includes aircraft familiarization, handling/warm-up, recognition of and approach to full stalls (with normal and accelerated recoveries), baseline nose-high and nose-low maneuvers (including entries with eyes closed followed by recoveries) and inadvertent rolling upset recoveries. The entire syllabus is then reviewed with a video debrief, from multiple cameras and audio equipment mounted in the aircraft.

Then the entire sequence is re-applied, but with the emphasis on IFR procedures this time. The ground-training sequence adds instrument scans, full- and partial-panel attitude reference, recognition of loss-of-control, zero-g benefits and power management. The flying portion (L-39 only) includes all the same elements of the VFR program, but performed under simulated IMC. Again, a video debrief is a fitting coda to the performance.

Well in excess of 100 jet pilots have experienced the UAT program, and Lauderback said interest continues to grow, mostly by word of mouth. "I understand the safety concerns of chief pilots, because I was one myself," he said. "But as more pilots and flight departments share their experiences with their colleagues, our reputation gets around. Just as with the Stallion 51 [warbird training] program, a total of 28 years with a flawless safety record puts a lot of fears to rest."



*The idea of seeing this display in the real world can be intimidating. But UAT's instructors focus on staying within the comfort level of their students.*

One satisfied corporate customer is Midwest Aviation, which serves as the flight department for a large Midwest-based construction company. Chief pilot Mike Moravec has high praise for the UAT program. "About three years ago, we decided to make a break from the traditional simulator training regime. Pilots choose from 16 elective training modules to supplement the regular sim training. I was looking for creative thinkers in the front of the airplane, not just button pushers."

Moravec's department includes 26 full-time pilots operating a fleet of mostly Learjet 70s and 75s, and he has found UAT to be the answer to his search for "reconnecting with the stick-and-rudder

flying we all learned long ago." He established a policy that all his new-hire pilots cycle through the UAT program within a year of their start date, and though some resist, all return from the program with renewed confidence and enthusiasm for flying, along with significantly improved proficiency in all areas of operations.



*The VFR portion of UAT's upset-training regime can be administered in the L-39 jet, or in one of Stallion 51's dual-control P-51 Mustangs.*

The instructors at UAT seem to have a great ability to connect with the pilot they are training, said Moravec, intuitively sensing how far to expand their capabilities without inducing undue stress and fear.

In fact, he said some of the program's loudest proponents are the ones who didn't exactly

start out as fans. Lauderback mentioned one corporate pilot whose boss had mandated that he attend. At the beginning of the ground school, "he put both hands on the table and said, 'I'm telling you up front. I don't want to be here.'" But after two days, the pilot was sold on the benefits, and is now one of UAT's greatest advocates. □