

FLYING LESSONS for April 1, 2010

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports to consider what *might* have contributed to accidents, so you can make better decisions if you face similar circumstances. In almost all cases design characteristics of a specific make and model airplane have little direct bearing on the possible causes of aircraft accidents, so apply these *FLYING LESSONS* to any airplane you fly. Verify all technical information before applying it to your aircraft or operation, with manufacturers' data and recommendations taking precedence.

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This week's lessons:

Federal, and international, scrutiny has focused many times on the safety of experimental aircraft. Recently an FAA study determined these aircraft are involved in four times as many fatal accidents compared to "certified" airplanes.

"Experimental" airplanes are called that for a reason. They do not conform to a Type Certificate, so there is no independent confirmation that performance and handling will conform to accepted standards.

There are many types of experimental aircraft. When most people think experimental, however, they think of Experimental/Amateur-built. Experimental/Amateur-built airplanes now make up as much as 20% of the total piston-engine fleet, and the number is growing.

What has been the trend in amateur-built airplane mishaps? I went to the EAA Convention at Oshkosh for the first time in 1993. I noted the large number of high-performance homebuilts on display and, a factory instructor pilot teaching high-performance piston aircraft at the time, I wondered about the safety record of these impressive aircraft. After some research I discovered some significant trends—accident scenarios that point not to the designs themselves, but to the capabilities of the pilots who fly them.

Soon after Oshkosh (it was not "AirVenture" yet) I sent EAA's then-president Paul Poberezny a proposal for an Experimental Aircraft Pilot Safety Program. Central to the proposal was a pilot's Code of Conduct.

My timing was fortuitous, because EAA, FAA, NTSB and the insurance industry was planning a conference to discuss the high rate of experimental aircraft accidents, especially in the first few flights. Mr. Poberezny amended a flight to Texas and stopped in Wichita to discuss my proposal. He then asked me to represent the flight training industry at the conference, which was held in Oshkosh in October 1993.

The meetings revealed that pilot experience, not airplane design alone, was the biggest contributor to amateur-built airplane accidents. Experimental aircraft, especially the new breed of high-performance composite aircraft beginning to enter the fleet in great numbers at the time, have higher stall speeds, less obvious warning before the stall and, because of the nature of amateur aircraft construction, sometimes unpredictable flight characteristics, handling that may differ significantly even from other amateur-built copies of the same model.

Pilots transitioning into these airplanes very often have little experience beyond piloting gentle training airplanes. In many cases the pilot has not flown for months or even years, discretionary time spent on building the airplane, not flying other types to the detriment of construction progress. Consequently, the pilot frequently is ill-equipped to fly the airplane once it's complete, unless he or she goes well beyond FAA minimum requirements to prepare for the completed airplane.

Another factor is that many more experienced pilots are drawn to experimental airplanes because of the performance-for-the-buck...and they offer an outlet for the more aggressive pilot. How many homebuilt Skyblasters out there sport paramilitary paint schemes, reflecting the élan of the amateur-built pilot?

One of the outcomes of the Oshkosh conference was EAA's [Flight Advisor program](#), which connects pilots of newly built or restored airplanes with experienced instructor pilots who review the airplane's characteristics and the pilot's experience, to recommend training and experience the pilot should consider before flying the experimental aircraft. The program is voluntary, the instructor does not actually fly with the pilot under the auspices of Flight Advisor, and the consultation is free.

See www.eaa.org/flightadvisors

Flight Advisors works. I spoke with Joe Norris, EAA's Homebuilders Communities Manager and the man-in-charge of the Flight Advisors and Technical Counselor programs. Joe tells me that last year 204 amateur airplanes were involved in reported mishaps. Only four involved pilots who had participated in Flight Advisors, and none of those events were fatal.

Norris laments that the "only downfall of the [Flight Advisors] program is that it is entirely voluntary. People who take advantage of the program are probably the ones who need it least." He and EAA are working with the FAA to make more people aware the program is:

- Available,
- Effective, and
- Free

And, Joe says, "it will make you a safer pilot."

FAA recently published an [InFo \(Information for Operators\) letter](#) addressing the high-performance segment of amateur-built aviation. The letter opens stating "safety concerns of amateur-built experimental airplanes possessing high wing loading and stall speeds in excess of 61 knots." Sixty-one knots is the maximum stall speed in the landing configuration for type-certificated single-engine airplanes in most cases. "FAA analysis of fatal accidents for airplanes operating under an experimental airworthiness certificate...has revealed a large and disproportionate number of fatal accidents for their fleet size. Though the FAA has seen a recent downward trend, these aircraft types have experienced fatal accident rates substantially higher than for-personal-use general aviation and the overall fatal accident rate for all amateur-built experimental aircraft. The FAA believes that this is mainly due to the pilot's lack of awareness of the slow-flight and stall characteristics of these type of high performance aircraft. Also, the nature of amateur-built aircraft means that each amateur-built aircraft may have unique flight handling characteristics."

See www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2010/InFO10001.pdf

What's changed in the 17 years since 1993? High-performance amateur-built aircraft have grown to be a significant part of the general aviation fleet. So the percentage of mishaps involving these aircraft is growing and, because high-end experimentals are now commonly flown

for personal and business cross-country travel that was never envisioned at the dawn of the homebuilder movement, they are involved in types of mishaps previously limited to high-performance production airplanes. The recent FAA advisory was a knee-jerk reaction to the unfortunate death of a person walking on a beach when an experimental aircraft was forced down by a propeller separation. The fact that the airplane was amateur-built is probably immaterial in this case...but it serves to highlight the higher-than-representative fatal accident rate in this class of aircraft.

So what's the *FLYING LESSON*? Even if you do not fly experimental aircraft, be very cautious when moving up (or down) in airplane capability. Your basic airmanship may translate to improved safety, but there's a good reason insurance rates are determined in large part by the pilot's experience in the specific make and model of aircraft. Time-in-type counts...and the mishap rate shows it. Contact EAA to find a Flight Advisor in your area, even if you're not flying an experimental airplane. Advisors are volunteers, and many are willing to help anyone be a safer pilot.

Comments? Questions? Tell us what you think at mastery.flight.training@cox.net.

Two pages worth reading

Avoiding Pilot Distractions

Many obstacles interfere with a pilot's ability to maintain situational awareness. Fatigue, stress, or workload can cause fixation on a single item rather than maintaining an overall awareness of the flight. A contributing factor in many accidents and pilot deviations is distraction, which diverts the pilot's attention from monitoring instruments or scanning outside the aircraft. Many distractions begin as a minor problem, such as a gauge that is not reading correctly, but result in deviations or accidents as the pilot diverts attention to the problem and neglects to properly control the aircraft. This [FAA paper](#) reviews obstacles to maintaining situational awareness. The material comes from the [Aviation Instructor's Handbook](#). Chapter 9 is especially useful to pilots who wish to better understand risk management.

See:

www.faasafety.gov/files/notices/2010/Mar/Avoiding_airborne_pilot_devations.pdf

www.faa.gov/library/manuals/aviation/aviation_instructors_handbook/media/FAA-H-8083-9A.pdf

Personal Aviation Safety Stand-down

The FAA Safety Team is holding a nationwide Safety Stand-down on Saturday, April 17th. Programs beamed live from the FAA at Sun-n-Fun add to live seminars at FSDOs and other locations across the country. Contact your local FAA office or FAASafety representative or check www.faasafety.gov for the schedule in your area.

Safety and Operations Specials

Business and Commercial Aviation magazine has launched [Safety & Ops Specials](#), a new, on-line information service. The first of the series will focus on thunderstorms, and includes BCA features, accident investigations, product specs, videos, photos, and more. Radar experts Archie Trammell and Erik Eliel will respond to readers' posted inquiries about getting the most out of airborne weather detection systems.

See www.aviationweek.com/bcathunderstorms

Just don't stretch your range too far

The National Business Aircraft Association (NBAA)'s "Ten Critical Strategies for Long-Term Fuel Savings" provides aircraft operators strategies for saving money on aircraft fuel bills, both in the short term and long term. "Opportunities to save fuel and reduce operating costs abound for business aircraft," NBAA said, which can potentially save business aviation operators thousands

of dollars per year. NBAA vice president of education, operations and economics Mike Nichols [a *FLYING LESSONS* reader] notes: “While the price of fuel may be out of your control, there are still tangible steps you can take to keep expenses down.” According to NBAA, “fuel production and refining costs will continue to keep wholesale and retail prices at levels never anticipated just two years ago.” [Here's how](#) you can minimize the impact of these fuel costs.

See www.ascendwithnbaa.org/fuelwhitepaper

Question of the Week

Last week's question addressed marketing by more than one airplane manufacturer that suggest their airplanes could dispatch regardless of weather:

What impact does these sorts of ad campaigns on pilot attitudes and flying safety? Are these types of promotions linked to the recently reported higher fatal and weather-related accident rates in glass cockpit designs? Are we overselling the weather flexibility of personal aviation?

Readers replied:

- The impact of these sorts of ad campaigns on flying safety is complex, generally adverse, and on many levels. First, we are definitely overselling the weather flexibility of personal aviation. Even if the aircraft is capable, the pilot experience, recurrent training, and risk prevention skills have to be equally capable. Often they are not.

Secondly, because the ads over-sell, they are in a real sense dishonest. It invites people into our world of general aviation on a false premise that leads to disillusionment with the whole industry when reality finally hits the new pilot. That is, in my opinion, an immature approach from an industry that needs all of the “grown-ups” it can get.
Finally, it implies that general aviation only has value as an instrument of a greater good—business transportation. In reality, pilots who stick around very long eventually realize that flying a GA aircraft is worthwhile for many reasons that go beyond just their utilitarian efficiency. Flying has intrinsic value; it is a worthwhile and enjoyable endeavor for many reasons and enriches the pilot's life in ways that go way beyond efficient transportation.
- Selling is SELLING! Sales/marketing always “oversell”; we as buyers must realize this fact and conduct our purchases within reality. That said it is the pilot-in command's responsibility to fly in conditions appropriate to his/her ability. This is the reason that a pilot's certificate is a license to learn and all must continually work at this learning process. Promotions are selling tools and “should” be read with a questioning mind! This long dissertation indicates “NO” to the three questions.
- Recently several aviation publications have made attempts to analyze the accident data for Cirrus airplanes as it appears these airframes have a higher accident rate than other aircraft of similar performance. Some of these analyses seem to point toward a certain personality type as being more likely to buy an aircraft of that category - the "type A go-getter" folks. Often, because of the fixed landing gear and parachute system, the Cirrus captures pilots who have little to no "high performance" time, and the crash statistics seem to bear witness to that lack of high performance experience resulting in pilots being way behind their airplanes. Without a doubt I believe the vendors encourage purchasers to use a "dang the torpedoes" approach to flying. Heck, if you had half a million bucks tied up in an airplane you'd hate like heck to have to leave it at the airport and take a commercial flight, wouldn't you? I guess this all points back to that wise old adage that says, "just 'cuz ya can doesn't mean ya should!"
- No matter what the equipment, “time to spare, go by air” is a mantra to repeat early and often when planning business trips where time is of the essence. Only the truly foolish believes that most GA aircraft can always make the flight. If the trip is that critical, go a day early. For that matter, only the naive believe the heavy iron will always come through. Have a backup plan and do not hesitate to implement it!

Thanks, readers. This topic prompts this week's Question of the Week, which is aimed primarily at instructor pilots but may be valid for anyone who mentors less experienced pilots:

How do you introduce the concept of go/no-go decision-making and personal minimums with your students? Do you have formalized personal minimums procedures you present, and when in the syllabus do you introduce and begin to use them?

Send your response to mfitsurvey@cox.net.

Fly safe, and have fun!

Thomas P. Turner, M.S. Aviation Safety, MCFI
2010 National FAA Safety Team Representative of the Year
2008 FAA Central Region CFI of the Year



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