



The Leader In Recreational Aviation

Chapter 736 Newsletter for November 2019

FAA Safety Team | Safer Skies Through Education

Runway Safety through Stabilized Approaches

Notice Number: NOTC9729

Maintain a Stabilized Approach! Have you heard these words before? It's a critical, lifesaving way to approach every flight.

There are several criteria, but generally, a pilot is flying a stabilized approach when he or she establishes and maintains a constant angle glidepath towards a predetermined point on the landing runway. Every runway is unique, but a commonly referenced glidepath follows the "3:1" principle. That is, for every 3 nautical miles flown over the ground, you should descend 1,000 feet. This simulates a standard 3-degree glideslope. Data shows that the further out from the runway threshold you establish a stabilized approach, the lower your risk of loss of control, wrong surface landings, or runway excursions.

Tips for Staying Stable:

- If it's not right, GO-AROUND! Execute a timely go-around decision when a stabilized approach cannot be made, or for any other condition that may result in an unsafe approach or landing.
- The further from the runway that you establish a "3:1" flight path profile, the greater your probability of successfully flying a stable approach.
 - NOTE: Every runway is unique and the published glidepath should be flown when available.
- A method to estimate the appropriate descent rate in feet/minute to maintain a 3-degree glidepath is to multiply the groundspeed in knots by 5.
- When available, use a visual approach system such as a VASI or PAPI, or precision instrument approach to help maintain glidepath.
- Increase your knowledge on stabilized approaches. Some resources include:
 - The **GAJSC website** (www.gajsc.org/loss-of-control)
 - **AC 91-79A** (www.faa.gov/regulations_policies/advisory_circulars)

AOPA TO SERVE ON EXAMINER SYSTEM REVIEW PANEL

AOPA has been named a member of an FAA working group that will study ways to fix shortcomings of the designated pilot examiner (DPE) system that created bottlenecks in airman testing and exacerbated the industry wide pilot shortage.

The working group will be responsible for recommending reforms to the FAA's Aviation Rulemaking Advisory Committee under a mandate from Congress to review all regulations and policies related to DPEs.

The group's approximately 25 members will include representatives of the FAA, flight schools, other aviation-industry associations, and individuals selected from a pool of volunteers to serve.

A June notice that assigned the review to the advisory committee stressed the importance of giving DPEs flexibility to conduct practical tests "to meet the growing need of the public."

"The Committee also shall make recommendations with respect to the regulatory and policy changes if necessary to allow a designated pilot examiner perform a daily limit of 3 new check rides with no limit for partial check rides and to serve as a designated pilot examiner without regard to any individual managing office," it said.

The working group will be required to report its recommendations to the Aviation Rulemaking Advisory Committee no later than 12 months after its first meeting. Congress also directed that the FAA "take such action as the Administrator considers appropriate" not later than one year after receiving the recommendations.

AOPA has strongly advocated for DPE-system reform, **noting** in June that the review could go a long way toward bringing about "much needed, long-lasting improvements." Some reforms are already taking effect: On October 2, the FAA **notified the aviation community** that it had extended a year-old policy allowing examiners to practice outside the territories in which they had been originally authorized to conduct practical tests.

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Runway Safety Tips – Winter Ops

Notice Number: NOTC9809

Winter is coming. Following these tips may **SPARE** you from dangerous runway incursions in the months ahead:

- **SPEED** - When taxiing, keep it slow. If you weren't able to walk steadily on the ice-coated surfaces leading out to your parking space, it is entirely likely that your 1,200-pound Piper *Cub* won't fare much better. Don't undo all the work you did to clean the aircraft off. Taxi slowly to avoid throwing up snow and slush into the wheel wells and onto aircraft surfaces. Taking it slow is also safer, providing more response time in case the tires decide to slide on an icy patch.

- **PURPOSE** - Ensure you have a current airport diagram to reference prior to taxi. We tend to become complacent, not realizing we are navigating from habit until a geographical reference is moved, removed, or snow covered along our route. Plan your route ahead of time, knowing where the runway safety areas are. Don't be the cause of a runway incursion because you weren't aware of a hold sign or marking, or were taxiing too fast to stop. Runway safety happens on purpose because of your planning and airmanship.
- **AERODYNAMICS** - Since braking is not effective on a wet or icy runway, take advantage of aerodynamic braking by holding the nose up as long as possible. Aircraft control can only be maintained if the main wheels are rolling. Any braking should be applied gently and evenly using care not to lock up the wheels. When the airplane slows down, control effectiveness from the rudder and ailerons are lost. The airplane does what comes naturally — it weathervanes into the wind. If there is ice, the amount of wind the airplane can tolerate drops dramatically. Land into the wind on icy surfaces, or divert to a less contaminated runway or one with less of a crosswind.
- **RUNWAY** - GA wrong runway approaches and landings continue to occur. Offset, parallel runways continue to challenge GA pilots. Be aware that you may be looking at a dominate runway, not the one that you were cleared for. Snow covered terrain may add to the difficulty. Understand your clearance and reference the airport diagram. If you're not 100% sure, go around.
- **EQUIPMENT** - Remove the airplane's wheelpants if equipped. Slush and ice can collect inside the wheel pant and freeze the brakes to the rotors making for an interesting landing with wheels that won't spin. Removal of the wheelpants will also allow you a clearer view to inspect tire condition and the possibility of leaking fluid.

Have **SPARE** time this winter? Be sure to check out the Runway Safety Simulator for regular updates. *Click Here* or go to www.runwaysafetysimulator.com.

Would You Fly on Wings of Foam?

In recently published research, engineers at North Carolina State University have determined that composite metal foam (CMF) and epoxy resin can be combined to improve aircraft wing performance.

“Aluminum is currently the material of choice for making the leading edge of fixed-wing and rotary-wing aircraft wings,” said Afsaneh Rabiei, professor of mechanical and aerospace engineering at NC State. “Our results suggest that infused CMF may be a valuable replacement, offering better performance at the same weight.”

CMFs, which have survived fits and starts in development since their **emergence** in the mid-1920s, are mostly hollow metallic matrices built from materials like stainless steel and titanium. Lightweight CMFs perform very well in extreme conditions and have demonstrated the ability to withstand high temperatures, resist extreme blast pressures and even withstand the concussive force of a .50-caliber round.

Following on these remarkable characteristics, NC State engineers engineered their newest CMF with a bit of a twist. Rather than allowing the hollows in their CMF to remain empty, those cavities were filled with a hydrophobic epoxy resin, creating what engineers call an infused CMF.

When put through testing rigors, including contact angle exams, insect adhesion tests, and erosion sampling, NC State’s infused CMF outstripped traditional aluminum wing performance by a wide margin.

“Researchers found that infused CMF had a contact angle 130 percent higher than aluminum,” insect adhesion was down across several vectors, and “CMF retained its properties through erosion and wear, which indicates that it would give leading-edge wing components a longer lifetime and reduce the costs associated with maintenance and replacement.”

Though aluminum will continue to be the material of choice for aircraft manufacturers, as the industry trends toward lightweight and possibly **all-electric flyers**, technologies like infused CMF wings might be a building block upon which a new generation of crafts emerge.