FLYING LESSONS for November 20, 2008

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports as the jumping-off point 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:

Loss of control (LOC) on the runway continues to be one of the most frequent scenarios for aircraft accidents. Primary factors in runway LOC include:

- Failure to properly compensate for wind or wind gusts, or attempting takeoff or landing in conditions beyond the pilot's ability or airplane's design.
- Attempting to take off or land on a runway inappropriate for wind conditions.
- Failure to compensate for propeller turning tendencies, especially during the takeoff portion of a touch and-go.
- Improper airspeed control, especially landing too fast or holding the airplane on the ground to too great an airspeed on takeoff.
- Tire failure, often the result of excessive speed on the runway, landing with a side load, or overly aggressive braking in response to landing long or the beginning of a runway excursion from another cause.

Sources in the insurance industry tell me loss of directional control on takeoff or landings is the most frequent in-motion claim cause in Light Sport Airplanes. LSAs are often flown by less experience pilots, but to date the LSA industry is populated primarily by experienced, certificated pilots who for reasons of cost or medical concerns have moved from traditional airplanes into this new class of aircraft. Runway LOC may be a function of the lighter control forces and reduced weight of LSA designs compared to the traditional aircraft in which most LSA pilots have earned their experience.

Tailwheel airplanes are most susceptible to "ground loops", or runway/taxiway excursions caused when the wind exceeds the pilot's, or the airplane's, ability to compensate. Crosswind limitations are generally lower in tailwheel than tricycle gear airplanes, with quartering tailwinds from the left being the most critical—a left quartering tailwind adds to the propeller's left turning tendencies to require the greatest control deflection to overcome with a left quartering tailwind (assuming a now-standard, American propeller rotation).

Tricycle gear airplanes are not immune to ground-looping. Pilot speed and skill is the limiting factor, followed by aerodynamic limitations of the subject airplane's design.

Practicing flight a minimum controllable airspeed is, among other things, a valuable lesson on rudder use and directional control at speeds like those at the end of a takeoff or the beginning of a landing roll.

Instructors should consider writing limitations into student pilots' logbooks as part of any solo endorsement. Limitations might include maximum wind speeds, crosswind components and gust values; you might also limit visibility and/or cloud height approval if there are local issues that in your judgment suggest higher than regulatory limits for student pilots.

An instructor's limitation as part of a solo endorsement is binding, and more importantly, it introduces the concept of setting personal limitations that should be a part of any pilot's skill set and strategy before earning a certificate or rating.

Review the limitations you set with your students, and expand or further restrict them as the student's recent experience varies.

All pilots should consider their recent experience as well as airplane characteristics, and set conservative personal limits for flying in strong winds or gusty conditions.

Questions? Comments? Send me a note at mastery.flight.training@cox.net.

For more on avoiding loss of control on the runway see these sections of the *Airplane Flying Handbook*:

- www.faa.gov/library/manuals/aircraft/airplane_handbook/media/faa-h-8083-3a-2of7.pdf pp. 2-9 through 2-11
- www.faa.gov/library/manuals/aircraft/airplane_handbook/media/faa-h-8083-3a-3of7.pdf pp. 5-2 through 5-6
- www.faa.gov/library/manuals/aircraft/airplane_handbook/media/faa-h-8083-3a-4of7.pdf pp. 8-6 through 8-7 and 8-13 through 8-17

Here to help

The FAA's Small Airplane Directorate (which oversees all U.S. airplanes under 12,500 pounds maximum gross weight) has published another General Aviation Safety Challenges newsletter, focusing on the threat of airframe ice. Specifically it reviews:

- The latest trends in ice-related accidents
- What causes accidents in icing conditions
- What "known ice" certification means…and what it *doesn't*
- Use of autopilots in icing conditions
- How to properly use pneumatic deice boots
- Ice contaminated Tailplane Stalls (ICTS)
- What ice testing is done on airplanes not certificated for flight in icing conditions
- Where to find out more about airframe ice

It's a good review for Northern Hemisphere readers as we are already in the icing season, and worth a read by those readers south of the equator as this years' threat of airframe ice isn't past for all of you yet. See www.faasafety.gov/files/notices/2008/Nov/GAIcing.pdf

Fly safe, and have fun!

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2008 FAA Central Region CFI of the Year