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PROFICIENT PILOT

Back to basics

July 1, 2011 | By Barry Schiff

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If I were king of the FAA I would require students to become glider pilots before allowing them into the cockpit of an airplane. Soaring offers a certain purity of flight that teaches fundamentals by eliminating the masking and distracting effects of power and propeller. Even experienced airplane pilots should consider a glider rating, enjoyable training that is guaranteed to sharpen your skills and improve the way you fly other aircraft.

An extreme example of the value of soaring skills occurred on July 23, 1983, when an Air Canada Boeing 767 ran out of fuel at 41,000 feet. The captain established a normal glide and headed for 60-mile-distant Gimli, a former Canadian air force base. While on final approach to the 8,000-foot runway, the captain saw that he was high. Drawing on his experience as a sailplane pilot, he lowered a wing, applied opposite rudder, deftly slipped off the excess altitude, and safely landed what has become known as the “Gimli Glider.”

Sailplane pilots learn a great deal about principles that are directly applicable to flying airplanes. Power pilots, for example, learn only one type of glide, the one that presumably results in maximum range from a given altitude. Glider pilots know better. While flying cross-country, they use the

"speed to fly." This is the optimum glide speed corrected for the vertical velocity of the air. When flying in rising air, the pilot reduces airspeed and spends more time taking advantage of the benefit. In sinking air, he increases airspeed to expedite passage through this adverse condition.

The same principle can be applied in an airplane. When penetrating updrafts, power pilots typically lower the nose to maintain altitude. This increases airspeed and decreases the time spent in rising air. Instead, you might consider using updrafts to advantage. Accept the altitude gain and possibly reduce airspeed slightly to remain longer in those surges of lift (called "green" air). When in sinking air, resist the urge to raise the nose to maintain altitude because this just reduces airspeed and prolongs exposure to the sinking air. Instead, accept the altitude loss and more quickly escape these deleterious effects.

Sailplane pilots also learn that the speed-to-fly increases when flying into a headwind and decreases with a tailwind. An airplane also glides farther when airspeed is similarly adjusted.

Single-engine pilots learn to maintain the best glide speed following an engine failure because this results in maximizing glide range (ignoring the effect of wind). But this assumes that a pilot *needs* to maximize range. Often he does not because the selected landing site is nearby and extending glide range is unnecessary.

So here is another glider lesson. When soaring in thermals and attempting to gain (or maintain) altitude, glider pilots use the minimum-sink speed, the indicated airspeed at which a glider or an airplane sinks most slowly. A Cessna 152 gliding at 60 knots, for example, has an average sink rate of 685 fpm when gliding from 10,000 feet to sea level, and the descent takes 14.6 minutes. When airspeed is reduced to the minimum-sink speed of 53 knots, however, sink rate is only 545 fpm. A glide from 10,000 feet would take longer, 18.3 minutes, an endurance increase of 3.7 minutes. Unfortunately, the POH for an airplane rarely provides the minimum-sink speed. Typically, it is about halfway between stall and best-glide speed. When gliding an airplane at "minimum sink," the time required to lose a given amount of altitude is maximized. This provides more time to attempt an engine restart or brief passengers.

The wingspan of a sailplane is much greater than that of a lightplane. With ailerons this far apart, there is substantially more adverse yaw effect. Consequently, glider pilots necessarily learn to be more adroit coordinating stick and rudder. Since they usually are not preoccupied with air traffic control and airspace restrictions, they have more time to master fundamentals. Power pilots have so much distracting, extraneous stuff to learn that the art of maneuvering often suffers in the process.

The duration, range, and altitude of a sailplane flight also depend on how well a pilot envisions the

motion of the atmosphere. Such skill and knowledge is directly transferable to powered flight because locating and taking advantage of thermals and ridge lift (or avoiding sinking air) significantly improves airplane performance when operating at heavy weights and high density altitudes. Soaring experience helps us to visualize how sun, wind, and topography combine to produce rising and descending currents of air. When sharing a thermal or a ridge with other sailplanes, it is not uncommon for gliders to safely operate within 100 feet of each other, which teaches us to maintain extraordinary vigilance for other traffic.

The relatively low speed of soaring flight makes the effects of wind more observable and more indelibly teaches us about drift and wind gradient. Glider flying obviously provides experience in power-off approaches and off-field landings, invaluable experience for those accustomed to relying on power.

Soaring is an infectious, aesthetic elixir. It is washing your wings in the wind and flirting with the breezy whims of Mother Nature. It is sliding on quiet wings over windswept ridges in the company of a lone hawk and inhaling a sense of freedom and exhilaration like no other.

Barry Schiff is a glider instructor and has been flying sailplanes for 55 years. Visit the author's website.

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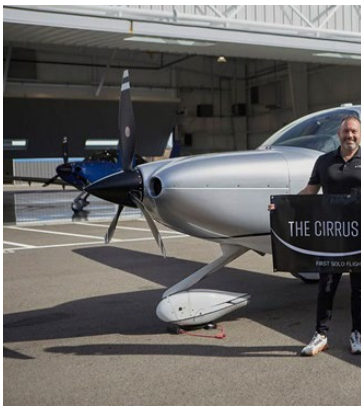

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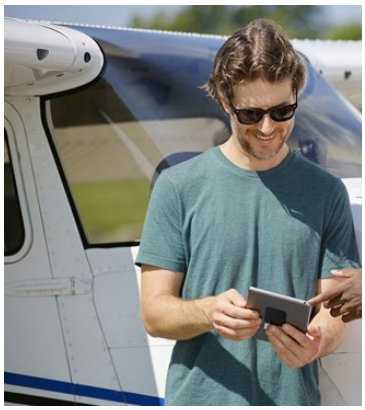

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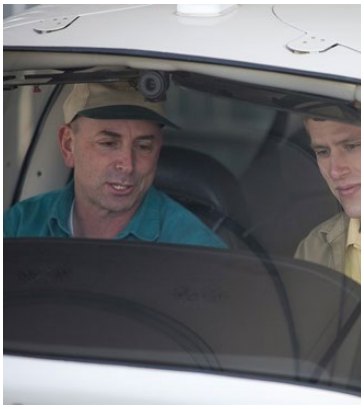

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