

The Value of Simulator Training

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The instrument-rated Private Pilot is flying his new G1000 Piper Mirage into an unfamiliar destination in mountainous terrain. He is above the clouds at FL210, about to begin a descent through broken layers for an LPV approach. He is anticipating some light icing in the clouds, but the weather at the airport is good. Suddenly, he hears the Master Warning Aural Alert triple chime, sees Alternator Fail CAS messages and a red flashing Volts indication on his engine instruments. He acknowledges the CAS Message, verifies the failure and starts looking for the Emergency Checklist. The Autopilot Disconnect tone sounds. Now the aircraft is rolling towards an unusual attitude. Is loss of control (still the number one cause of aircraft accidents) imminent? PAUSE. PAUSE? Yes, the instructor presses PAUSE. This scenario is being played out in a full-motion simulator at Legacy Flight Training in Vero Beach, FL, where pilots of all experience levels go to hone their skills in the PA46 aircraft with the help of highly-trained, knowledgeable instructors. This is the value and importance of simulator training.

Simulator training removes the distractions that can get in the way of effective learning: there are no freezing or scorching temperatures to suffer; no congested airspace with clogged radio frequencies to navigate; no fuel being burned as your instructor talks; and no life-or-death consequences for rusty pilot skills or poor decision-making. Pilots can practice confronting situations they may otherwise choose to avoid – IMC with icing in the mountains – or pray they never encounter – dual alternator failure – in a safe, controlled environment. After the simulator is paused, the instructor and student can discuss the aircraft’s electrical system, identify and read through the appropriate emergency checklist, discuss why and how to complete each item, and review the best technique for scanning the instruments in a glass cockpit to maintain control while hand-flying in instrument conditions. When the simulation continues, the pilot feels more confident about troubleshooting the failure, and can program the FMS and autopilot to fly a safe approach to landing. Or, if it doesn’t go well, they will try it again. And again. The ability to repeat a scenario until proficiency is another value of simulator training. Ultimately, pilot confidence soars and muscle memory is developed for both normal and emergency procedures. Often, one of the most impactful lessons that pilots take away from simulator training comes from evaluating their own skill level and decision-making process. In the debrief the instructor will ask: What did you do well in that difficult situation? What did you miss? Were there other alternatives you could have considered? Are your skills where they need to be? What would you do differently next time? So, although the electrical failure scenario above is unlikely to occur in a well-maintained aircraft, the lessons from the training exercise will stay with the pilot for years to come.

In the scenario discussed here, the pilot is new to the G1000 avionics. Transitioning to a new aircraft is the perfect time for some simulator training! It is possible to learn the normal procedures, flows, instrument scan, and “buttonology” before ever setting foot inside the real airplane. For avionics training your instructor will start with the basics -- tuning radios, going direct-to, loading basic flight plans, flying instrument approaches, autopilot modes – and work up to complicated approach and departure procedures, VNAV profiles, unpublished holding patterns, etc. Remember, no fuel is being wasted as you hunt around for the right button. At Legacy Flight Training, their piston and turboprop simulators can be configured with different glass panels, allowing for Initial and Recurrent Training in a wide variety of aircraft. Even pilots with thousands of hours in the airplane often learn a new feature or

function of the avionics or autopilot that enhances the safety and efficiency of their next flight. Legacy Flight Training will even use their simulators to teach non-pilots a technique for safely landing the aircraft should the pilot become incapacitated in their Empowered Passenger (Pinch Hitter) Program. From *ab initio* through military and airline training, simulators are recognized by the FAA and industry-wide as valuable tools for increasing pilot proficiency and skill. As one pilot said after her simulator training in Vero Beach, “The information and training I received has made me a much more proficient, confident and knowledgeable pilot – it is [now] more fun and less stressful to fly as PIC.” Have “more fun” and “less stress” in your airplane: try simulator training today!