

Safety First

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SWITCHOLOGY

The advent of GPS technology and glass panels has had a profound influence on general aviation. All major manufacturers today are turning out new aircraft with glass panels, and mini glass panels are now certified to replace mechanical attitude indicators and directional gyros. Comparing the capabilities of newly manufactured airplanes with their predecessors of 20 years ago, performance parameters such as cruise speeds and payload show a modest improvement, but avionics have made phenomenal enhancements with weather displays, moving maps, graphic engine monitors, and most remarkably recently, synthetic vision.

The addition of WAAS capability to GPS navigation systems now allows near-ILS performance to instrument procedures to thousands of small airfields. However, the enhanced utility and risk reduction in these advances demands from the pilot an added level of proficiency quite apart from stick and rudder skills.

I recently flew several practice approaches in soft IFR conditions. WAAS approaches are similarly displayed on an HSI, with localizer and GS needles active.. After completing two GPS approaches, an ILS approach was selected, but the display did not make sense after selecting and verifying the correct approach & VOR frequency, and dialing in the final approach course. After 30

seconds of confusion under the hood, I realized the button deselecting GPS had not been activated. A simple push



of one button brought normality back to the gauges. Thirty seconds of indecision and confusion can seem like a lifetime after being established on an approach, and the stretch from IAF to FAF at low altitude is no place to be lollygagging and skylarking with a ceiling of < 1,000 ft.

Lack of thorough understanding and familiarity with the switchology of advanced electronic displays can put you in a world of hurt if ATC unexpectedly vectors you away from an established full approach for weather or sequencing. I have had the experience of having begun a full approach, with all the legs and altitudes set, only to be given a short cut which screws up all the sequencing in the GPS display. A hurried

reprogramming of the approach in the terminal approach environment would be a particularly bad time to push a wrong button.

There is another big fly in this ointment also. Most of us learned to fly IFR with great respect for loss of vacuum in IFR conditions. A back up electric pump became de rigueur for serious instrument flight. Now, a loss of electrons can similarly cripple an advanced technology airplane, and back-up steam gauges are mandated by the feds for technologically advanced aircraft. All of which goes to show, there is no free lunch, and in this business, risk management all revolves around

proficiency in all systems available to us, and avoiding putting ourselves in situations where there is no back up alternative to save the day. All these technological advances have doubtlessly reduced risk, and we are a far cry from the dit-dat ranges of 50 years ago, but the "this is your license to learn" caveat that your flight examiner gave you (or should have given you) after handing you your first ticket, still applies. No magic electronic box will ever make flying "safe" and the ticket of admission to the world of sunsets from 9,000 feet still requires a commitment to proficiency in basic flight skills and knowledgeable use of modern instrumentation.

Nil illegitimae carborundum.