AVIONICS, CRM AND DECISIONS

Flying a different aircraft can raise the excitement level; but it's the avionics that really captures your attention once the IFR experience begins.

By TJ Spitzmiller

Many exciting flying opportunities have surrounded me over the years and it keeps getting better as my involvement within the aerospace arena increases.

The evolution of avionics has breathed new life into the general aviation community over the past decade. Pilots around the country are embracing this new technology, just as the world did with personal computers. There is new excitement added to old airframes.

The Equipment Suite

My adventure to Oshkosh this year was via a thirty-five-year-old Saratoga II equipped with the Garmin G500 PFD/MFD, GTN 750 & 650 Touchscreen GPS/NAV/COM and the L-3 ESI 500 Backup attitude indicator.

Also aboard was a FlightStream 210/510—a wireless gateway that was new to me. It streams information to and from your avionics system via Bluetooth. To continue the spoiling, an Aspen PFD/MFD was in the co-pilot's field of sight for his or her viewing pleasure.

The crew consisted of a brand new IFR pilot in the left seat, a former air traffic controller lounging in the back, and yours truly as the other up-front guy.

Actual IMC Is Different

The first leg of our trip would take us from Venice, FL (KVNC) to Tullahoma, TN (KTHA). Thunderstorms covered the Florida area inland most of the early hours that morning, followed by some fairly heavy showers around our departure time.

Our route was simple—radar vectors; PIE (St. Petersburg); TABIR intersection; then direct KTHA. We had an aircraft equipped for serious IFR with an understanding that mother nature doesn't care about any of that.

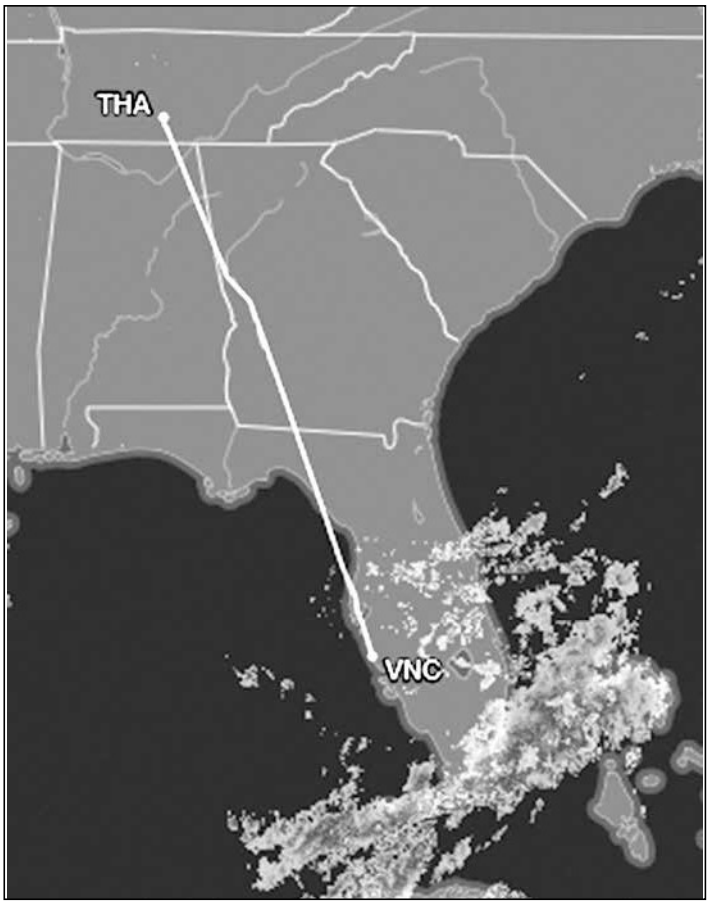
Moments after takeoff we were IMC and I noted to our newly minted IFR pilot that our assigned heading was left to 030 degrees and not a slow drift to the right. It took him only a moment to utter the phrase, "wow, this is a lot different than being under the hood."

I've been there so I know what was going through his head—the discipline of trusting your instruments requires seat time, and the best way to get that is to go up with a pilot that can provide a new level of safety and instruction.

We went through the following steps during his moment of spatial disorientation. Level the wings, clean up the airplane, verify positive rate of climb, use the airspeed indicator as the primary pitch instrument through the climb and then a nice standard rate turn to our assigned heading. Our trusty pilot logged a valuable half hour of IMC during the departure.

The Halfway Mark

Tullahoma was our half-way point and allowed us to rest up at lunch, brief our OSH NOTAM and figure out how we were going to navigate around the weather near Oshkosh and the massive thunderstorm just northwest of Chicago. The IFR flight provided quite a few changes to our



Being able to "see" the location of tough weather using in-cockpit displays provides a measure of situational awareness that was only a dream a decade ago.

route and this is where additional crew resource management started to come into play.

Our ATC guy in the back was using a Garmin Aera 660 touchscreen portable GPS, so we put him to work to keep another eye on the weather and plan possible VFR routes. The FlightStream 210 came in handy; our third crewmember loaded the new flight, while we up-front simply previewed and accepted it on the GTN's and the iPad with two touches of a finger.

Working The Weather—VFR

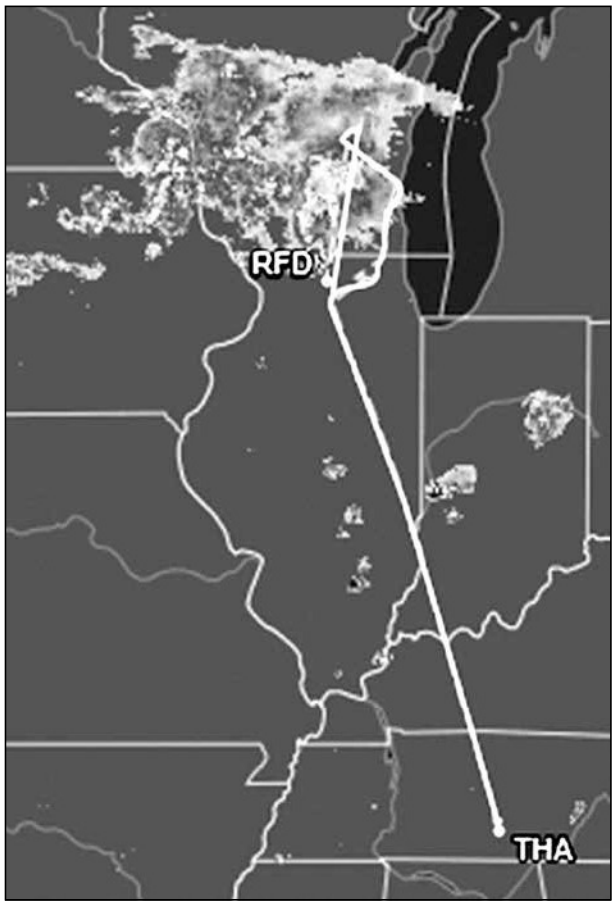
One hundred miles south of Oshkosh we approached the brilliant red coloring as shown on the GTN and iPad through the ADS-B In, which was provided by the Garmin GTX 345R transponder. We canceled IFR at Rockford Illinois (RFD) and began the VFR portion heading east towards O'Hare and away from the storm. There were now three of us contemplating which route would keep us clear of the storm as it moved east and away from KOSH.

The peanut gallery in the back proved valuable as those up-front were busy ducking under Class B and inching further away from the lightning at each flash. A new proposed route soon appeared on our tablet and GTN's that would take us north, near the coast of Lake Michigan, while keeping blue skies to our right. We liked what we saw and accepted the plan and gave the fully relaxed guy in back the thumbs-up. The storm began dissipating as we flew north with glimmers of light (or maybe hope) that we could soon turn towards our destination.

As our flight progressed, we began to see TIS-B traffic start to appear near Oshkosh while the KOSH approach frequency came alive with chatter. The skies started to open and the FISK arrival was now just twenty minutes away. We were welcomed by the finest ATC volunteers and in this rare case, the skies were not busy, so we actually had ATC initiated gossip which ended in the words "which runway would you like?"

The Return

Our trip back to Florida was simply the reverse of the trip out—minus the VFR excursion around Lake Michigan and weather. The flight to Tullahoma consisted of light IFR and allowed plenty of time to monitor the tropical depression that set stationary over Florida. The forecast called for it to begin moving out in the early evening but there were no definitive signs that guaranteed we'd make our final destination.



There is a time and place for IFR and a time to recognize when VFR is more prudent; as was the case in this flight.

Tullahoma once again allowed for a nice break and the time to evaluate the weather en route while on the ground with our thinking cap. The weather system was still stalled over Florida and our trusty pilot was now seated in the right, which allowed me to finally take the controls of this highly equipped beast. This would be the first time I actually flew with the G500 in my primary field of view and I felt at home with G1000 thoughts. The smaller screens actually work well in this environment accompanied with the intuitive GTN's.

With autopilot engaged and a smooth flight ahead, I was able to explore the additional functionality of the FlightStream 210 gateway which also streams the AHRS attitude information to your tablet. The airplane I was flying now had yet another full display with synthetic vision to compliment the certified avionics on board.

The evolution of avionics has provided a plethora of information and significantly enhanced situational awareness. Crew resource management played a key role in the decision making which is something avionics don't do for us. We saw early on in the article that even with an abundance of the best equipment, the aircraft must still be manipulated by human interaction. That interaction is influenced by many outside factors. Therefore, we must all continue the learning process and train our brains as we try to catch up with technology. §

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