DAVID HUGHES

WAAS Happening!

Are You Up to Speed on LPV Approaches?

When Mike Hall pilots his Mooney to his home airport in upstate New York, the Wide Area Augmentation System (WAAS) capability in his avionics display allows him to see and, with appropriate ATC clearance, join the RNAV (GPS) 32 instrument approach procedure when he is still around 30 miles from touchdown. Showing his location to an accuracy around eight feet on the terrain map generated by the installed database, the precision WAAS provides is the reason why nearly 60,000 aircraft, or around 60 percent of IFR capable general aviation aircraft fleet, are now equipped with WAAS-capable avionics.

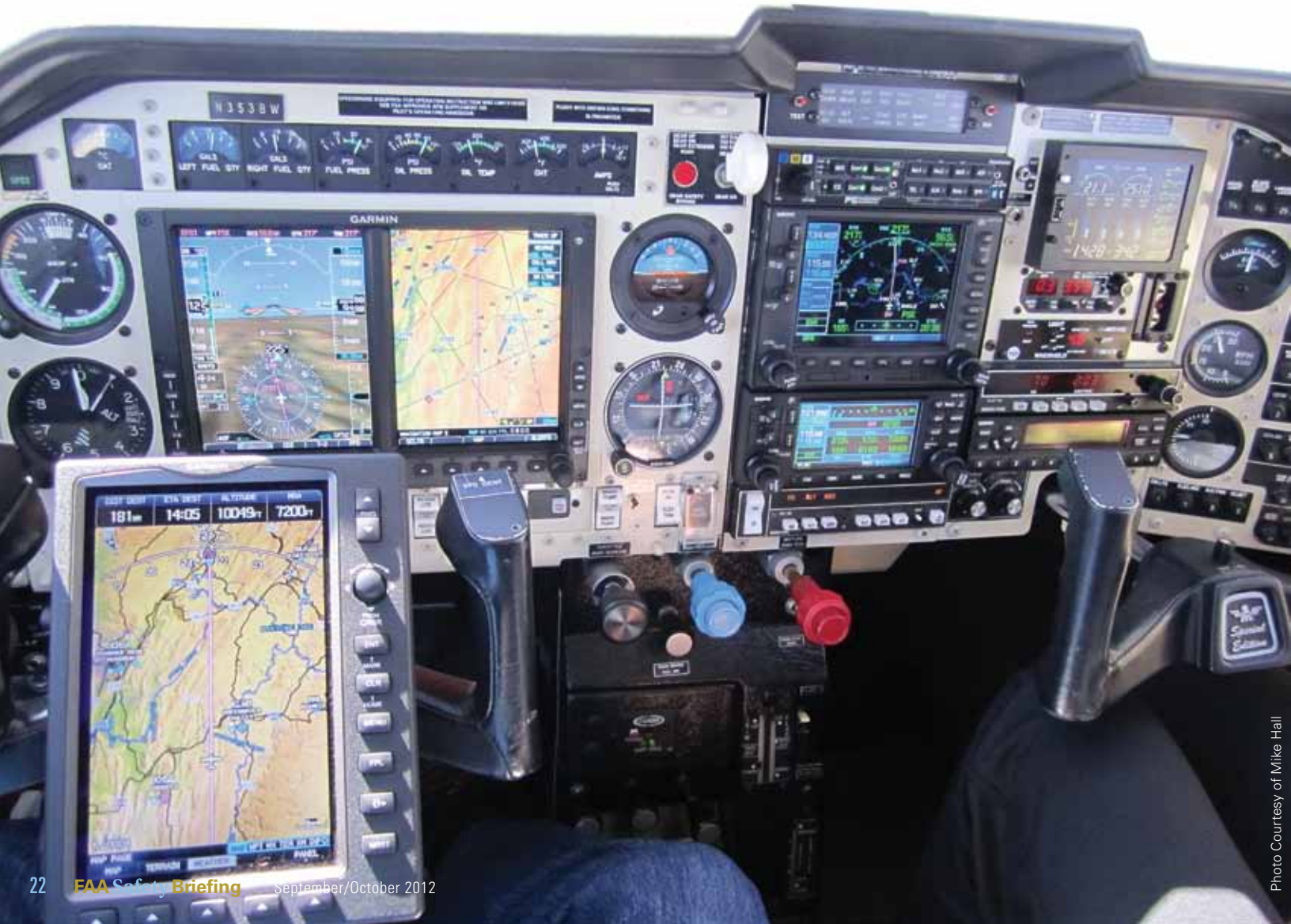
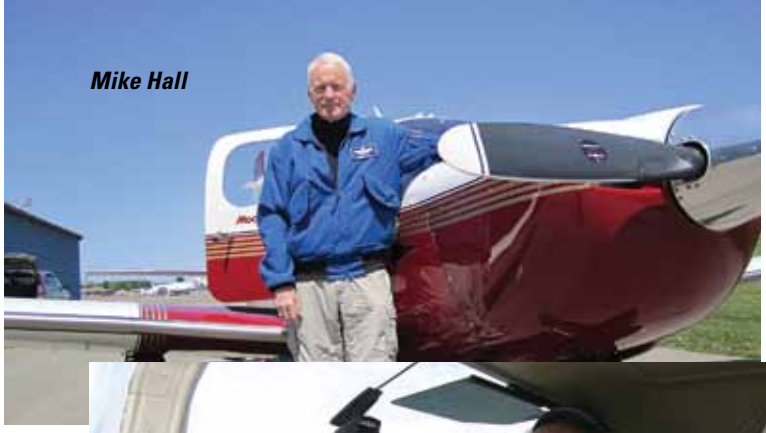


Photo Courtesy of Mike Hall



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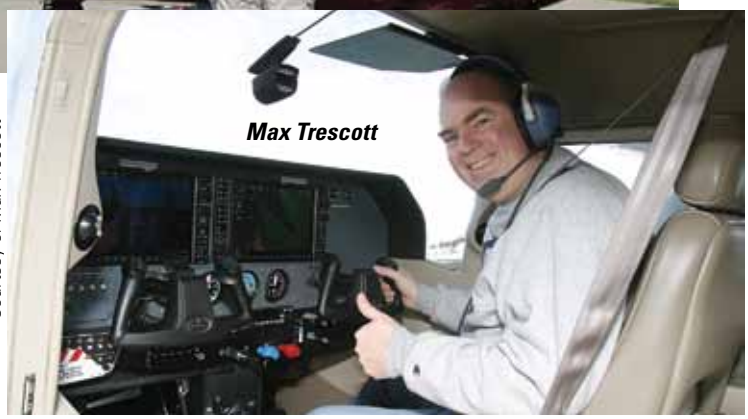

Courtesy of Max Trescott

As he closes in on Runway 32 at Ithaca Tompkins Regional Airport (KITH), Hall knows that the airport is equipped with both a conventional Instrument Landing System (ILS) and a WAAS-enhanced RNAV (GPS) approach that includes Localizer Performance with Vertical Guidance (LPV) minimums. Though minimums for the LPV are almost identical to those for the ILS, he almost always requests the LPV approach. As Hall observes, the LPV approach is just as accurate at 30 miles as it is over the runway threshold. ILS, by comparison, becomes less accurate as distance from the runway increases. Moreover, while ILS guidance can waver with any disruption to the ILS signal, LPV remains rock solid.

Before the advent of LPV approaches at KITH, any ILS outage left pilots with few viable options in instrument meteorological conditions (IMC). As Hall observes, the only other approach to Runway 32 is a VOR procedure with minimums very close to those for VFR flight (2,500' ceiling). In an area plagued by winter snow and low visibility, having an out-of-service ILS meant Hall and his fellow pilots often had no luck getting into home base. Since he flies around 250 hours a year on business and personal trips, the LPV option is a very positive improvement.

Hall, a retired Air National Guard major general and F-16 fighter pilot who served in Operation Desert Storm, serves on the airport's governing body. He was an early advocate of getting LPV approaches developed and published for KITH, and notes that around 25 of the GA aircraft based at the field are now equipped to fly LPV approaches. These procedures can also benefit the two commuter carriers serving this airport once they equip their aircraft to do so.

Ithaca is not alone in enjoying the benefits of WAAS. The FAA has published more than 2,800 LPV approach procedures for use at nearly 1,400 airports since WAAS was enabled for operational use in 2003. The agency intends to publish another 2,500 procedures by 2016, which will allow every runway in the nation that qualifies for an LPV to have one.

Of these 2,800 approach procedures, over 50 percent are published at airports that lack a ground-based ILS system. In fact, some of these airports don't have any approach procedures using ground based navigation aids. That's another reason that LPV procedures are such a big hit with pilots, says Heidi Williams, vice president of Air Traffic Services and Modernization for the Aircraft Owners and Pilots Association (AOPA). "Our members embrace GPS and area navigation (RNAV), including WAAS, due to their benefits," she adds.

Another fan of LPV is Max Trescott, CFI and aviation educator/author who teaches pilots in Silicon Valley how to fly LPV approaches in their high-performance single and twin engine aircraft with glass cockpits. Trescott logs about 500 hours a year in instruction time and has written several books on today's avionics to fly LPV approaches. Trescott focuses on training pilots to properly set up the GPS avionics for an LPV approach because, as he and Hall both observe, it's just like flying an ILS after that. And just like Hall and his fellow pilots in New York, Trescott's California clients have benefited immensely from WAAS capability. For instance, Half Moon Bay Airport (KHAF), located near a Pacific Ocean beach in San Mateo County, was often inaccessible using non-precision approach procedures because cloud bases at 800 to 1,000 feet often restricted access to the airport. With the new LPV approaches, however, aircraft can easily fly into Half Moon Bay on cloudy days. Trescott also notes that LPV has made Reid-Hillview Airport (KRHV), a reliever for San Jose International Airport, more accessible.

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If you're not familiar with WAAS-enabled approaches, including those with LPV minimums, it's a great option. Try it — you'll like it!

David Hughes is a writer/editor with the FAA's Office of NextGen Performance and Outreach.