



The Leader In Recreational Aviation

Chapter 736 Newsletter for November 2013

Unmanned 'tower' of the future takes shape in West Virginia.

It began when a small airport in mountainous Beckley, W. Va., the only nontowered airport in the state with commercial service, failed to convince the FAA to fund a control tower but refused to take “no” for an answer.

It sparked a brainstorm, and county officials agreed to pay the first \$75,000 toward an effort with potential to benefit aviators nationwide: developing a radar-based system that can automate traffic advisories, replacing at least one critical function of towers, particularly the smaller contract towers recently placed in cost-cutting crosshairs.

The early (radar) returns proved positive: A portable system provided by a Florida company succeeded in tracking an unusually busy airspace when the Boy Scouts of America held their national jamboree about six miles from Raleigh County Memorial Airport in July. Eight Virginia National Guard helicopters came and went, sharing airspace with C-130s and the usual mix of general aviation and commercial traffic that uses the airport. Forty miles north in Charleston, controllers got a look at something they had never seen: a clear picture of air traffic around an airport normally shadowed from their radar screens. There is no FAA radar coverage below 5,000 feet over Beckley.

The Synthetic Air Traffic Advisory System that David Byers, a college professor and airport consultant who has supported many efforts by local officials seeking towers, conceived invites comparison to automated weather stations. Instead of a computer-generated voice announcing winds, temperature, and cloud conditions, the synthetic voice would announce radar targets over the radio, and could even be made capable of directing advisories to specific aircraft identified by transponder returns. Aircraft without transponders could still be “painted” on the primary radar. A second radar system able to track surface movements could be added to alert pilots to unsafe runway conditions, such as a deer standing on the centerline.

Byers said the system is both viable, in the sense it can enhance safety when human controllers are not available, and marketable to airports small and large.

The potential market includes both towered and nontowered airports. Byers noted that many control towers are staffed part time, leaving overnight arrivals and departures to see and avoid without radar support. Just as automated weather systems are often turned on at closing time, a tower staff of the future could flip a switch and let the computer take over traffic calls when the tower is closed. The one thing the synthetic system won't do that a manned tower will is suggest a course of action to resolve a traffic conflict. While software can be written to identify a potential collision, be it in the air or on the ground, FAA regulations and liability issues preclude suggestions by the computer.

Byers said there are technical issues to be worked out, such as writing the algorithm that will allow the system to recognize potential conflicts and trigger advisories, but he is confident that with funding, the system could be available for airport use before time runs out on the towers.

Flight plan changes take effect

Some equipment suffixes used in FAA domestic flight plans have been replaced to better reflect aircraft capabilities. The change took effect Oct. 24, on the closing day of the National Business Aviation Association convention in Las Vegas, and operators who had previously filed with suffixes /R, /Q, /E, /F, /J, and /K are now required to use one of four remaining suffixes.

The suffix to use depends on both on-board equipment and services requested. Pilots requesting performance-based navigation (PBN) routing should file an ICAO flight plan, as the FAA has required since 2008, though RNAV-equipped aircraft seeking non-PBN routes such as RNAV departure and arrival procedures, may file a domestic flight plan with the following suffixes:

- RNAV capability with GNSS and with RVSM: **/L**
- RNAV capability with GNSS and without RVSM: **/G**
- RNAV capability without GNSS and with RVSM: **/Z**
- RNAV capability without GNSS and without RVSM: **/I**

The FAA stated that the new suffix codes will allow controllers to make better routing decisions, able to clear aircraft with GNSS (global navigation satellite system) capability on more direct routes through airspace not covered by radar. Aircraft without GNSS capability will continue to require radar monitoring, the FAA noted in a press release.

The FAA has been working in recent years to align flight planning requirements with ICAO standards, though the agency has stopped short of requiring domestic GA flights to use an ICAO flight plan format. Use of the ICAO form is encouraged for domestic operations, and [required](#) for flights that cross an international border.

Swift Fuels gains ASTM approval

An unleaded fuel created for a wide range of piston aircraft, including those with high-compression engines that require high-octane fuel, has been cleared for production.

Swift Fuels, the Indiana firm that has worked for years developing an unleaded alternative to 100 LL, is ready to ramp up production of 100SF, according to CEO Chris D'Acosta. Realizing the market potential for that fuel, potentially hundreds of thousands of aircraft, will require individual FAA certification of specific engine and airframe combinations.

It remains to be seen whether that will happen model-by-model, or on a fleet scale. D'Acosta remains confident that 100SF will be distributed on a large scale within one to three years.

Final ASTM approval of a production specification follows the September opening of a new Swift Fuels production facility able to turn out 10,000 gallons a month, a production level benchmark specified in the FAA roadmap for unleaded transition. The ASTM production certificate for this particular formula, along with the production facility opening, mark completion of 10 steps in a 16-step process outlined by the FAA Unleaded Avgas Transition Aviation Rulemaking Committee (of which AOPA was a member) in its final report in 2012.

D'Acosta said Swift Fuels is working with “most” general aviation airframe and engine manufacturers, though it will be up to those companies to decide which aircraft and engine combinations will be submitted for FAA certification to operate with 100SF. It also remains to be seen whether manufacturers will seek certification of new aircraft, existing aircraft, or a combination of both.

There remains no clear path to certification of aircraft or engines that are no longer supported by a manufacturer.

Swift's unleaded formula has already been tested, and performed well, in a range of aircraft engines, including high-performance racing engines and radial engines.

Until the FAA certification process moves forward, “there is an element of a waiting game,” D'Acosta said.

The FAA issued a formal request for unleaded aviation candidate fuels to be tested in June, and the agency included \$5.6 million in the 2014 budget to support that testing.

Next Meeting

Our next meeting will be held on **Monday, Nov. 18th** at the Weathervane Restaurant in Waterville. As is our usual practice, please arrive by 6:00 pm if you plan to have dinner so that the meeting can begin at its normal time of 7:30 pm.