



Chapter 736 Newsletter for February 2018

Calls for Regulation of Hobbyist Drones Follow Latest Close Encounter Report

A video from a drone that flew within feet of an airliner over Las Vegas and prompted outrage on the internet has spurred three influential U.S. aviation lobbies to call for tighter regulations on hobby drones.

Legislation exempting certain hobbyist drone pilots from oversight by the Federal Aviation Administration has hampered the aviation agency's ability to oversee safety of drones, according to a letter sent Monday to lawmakers. The letter was from Airlines for America, a trade group representing large carriers, and the Air Line Pilots Association and the National Air Traffic Controllers Association, the unions that represent pilots and controllers.

"We strongly urge you to remove legislative restrictions that have been placed on the FAA that limit its safety oversight of UAS," the letter said, referring to drones as unmanned aircraft systems. "The likelihood that a drone will collide with an airline aircraft is increasing. By providing the FAA with the full authority to regulate all UAS operations, the safety of passenger and cargo flights will be protected."

Tense Skies

The letter is part of larger tensions within the civilian drone world as companies including Amazon.com Inc. and Alphabet Inc. seek tighter controls to ensure orderly skies for delivery flights, while people who view them as high-end toys try to preserve their freedom to fly. It also comes as safety incidents reported by pilots continue to rise.

The FAA is investigating the Las Vegas incident, in which a drone with a camera apparently films an airliner flying directly beneath it at close range, according to an agency statement. The video was posted Feb. 1 by the UASNews website, but the date it was taken isn't clear.

An FAA-sponsored study released in November found that drones weighing just a few pounds could cause significant damage to airliner engines, windshields or wings.

The exemption on FAA regulation of hobby drones was cited by a judge in May in a case overturning the agency's ability to require owners to register their devices. Congress has since reinstated FAA's drone registration, but hasn't changed the broader hobbyist exemption.

The Academy of Model Aeronautics, which represents model-aircraft flying clubs and lobbied Congress for the exemption, said in a statement that it shares the safety concerns of the other aviation groups. It called on FAA to step up enforcement and do more to educate drone users.

However, the exemption for hobbyists shouldn't be faulted for the episode. The actions of the drone operator in Las Vegas weren't covered by any exemption and were illegal.

Flying cars are about to become real

It may have been 56 years since "The Jetsons" was first on TV, but flying cars are finally about to become real.

The last few months have been filled with news of companies that unveiled, demonstrated, or released videos of their "air taxis," as they're often called. They're basically giant-sized versions of drones — giant enough to carry a person, or two, or five.

Why now? Because all the necessary ingredients have aligned: Batteries with high enough energy density to carry these copters into the air; composite materials like carbon fiber light enough to work; avionics (aircraft software and electronics, developed for regular drones) cheap and reliable enough to adapt; and collision-avoidance systems advanced enough to keep these things from crashing.

The beauty of these personal copters is that since they're all electric, they're really quiet. They could fly at low altitude without becoming a nuisance to people on the ground. And, of course, they're pollution-free: zero emissions.

All of these models can be autonomous. You plug in your destination, and the thing flies you there. Some have a joystick so that you can seize control of it if you want, and most can also be remote controlled.

These air taxis are built with redundancies of the major elements, so even if something goes wrong, you won't drop out of the air. Many have low-altitude parachutes, too.

Now, don't get all excited. You can't buy a passenger drone yet — that moment will probably come in 2020 at the earliest, and they'll cost hundreds of thousands apiece. Even then, nothing will happen in the U.S. until the Federal Aviation Administration comes up with rules to govern how these things use the airspace.

Oh, and by the way: Even with all the advances in batteries and materials, these things are still super limited in flight time. You're lucky to get 20 minutes in the air.

But the trend is unmistakable: A lot of companies have working prototypes that are taking real people on real flights.

N-Numbers, ICAO, and Your ADS-B Identity

Many owners like to personalize their prized aircraft with an N-number that represents them, often with their initials. Before the advent of NextGen, painting the new number on the airplane, and professing it to ATC, covered the customization. Now, unless an airplane's ADS-B identity matches its new N-number, **a filter the FAA activated in January** will likely scrub it from ATC's scopes and the Traffic Information Services Broadcast to other aircraft with ADS-B.

Aircraft transmitting erroneous information, whose ADS-B identity doesn't match the N-number painted on the airplane and processed to ATC, will not wander the sky at will. They will continue to receive ATC services based on secondary radar information when flying in radar coverage.

What's this ADS-B identity, and where does one find it? Officially, it is the 24-bit ICAO address that is forever linked to an N-number, like a fraternal twin. It is otherwise known as the Mode S code, and when the N-number changes, so does the code.

If aircraft owners don't have their avionics shops update their ADS-B systems with the new ICAO address (and call sign, if their aircraft officially operates with one instead of its N-number), when they get a new N-number, they will be spewing erroneous information. And should they get caught by the new filter, they will receive a notice of the errors of their ways and a request to contact the FAA's ADS-B Focus Team, if the FAA can locate the owner of the offending airplane, that is.

When the ADS-B identity doesn't match the physical N-number, making the aircraft registry connection to the owner is more involved. And if the FAA cannot make the connection, the offending aircraft is forever filtered without further notice.

There are several ways owners can ensure that their aircraft are broadcasting the correct ADS-B identity. They can have their avionics shop connect the appropriate test box and check all the numbers, correcting those in error. Or they can request a **Public ADS-B Performance Report (PAPR)**, an automated online tool that emails a free ADS-B report card within 30 minutes after the conclusion of the specified flight in ADS-B airspace.

A PAPR examination highlights all of the erroneous data in red (check out the **online PAPR user's guide** for all the details). If an owner requests a report but doesn't receive one for the N-number he or she types into the online form, that means the system cannot find it in its inventory of flights, which means that the airplane's ADS-B identity doesn't match the number painted on its flanks.

Another common error is an improper emitter category, which identifies the aircraft size by weight. Its seven categories range from Light Airplane (max weight of 15,500 pounds or less) to Heavy (max weight of 300,000 pounds or more). It has three more definitive categories: Rotorcraft (all of them, regardless of maximum weight), High Performance (more than 400 knots

true and 5 g), and Large Airplane with High Vortex (airplanes that weigh 75,000 pounds or more that generate high wake vortex; the Boeing 757 is the only current example).

There might be a third way, doing nothing. The only clue that there might be something amiss with the airplane's ADS-B identity is a reduction of available ATC services. Equally important is the degradation of TIS-B traffic, which works in concert to mute the aircraft owner's ADS-B investment