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Drone regulations await flight plan

By Matthew F. Miller

Drones, once thought of as warzone killing machines, now are the stuff of Christmas lists. Some say a million consumer drones will be unwrapped this year. This begs the question, what rules will these remote pilots fly by? And should drone hobbyists play by the same rules as commercial drone operators?

Drone regulation is in flux — amazing for an industry in the midst of exponential growth. One study posits global drone-related spending of \$98 billion over the next decade. While Federal Aviation Authority regulation of most small commercial drones can be expected to be finalized in 2016, the vast majority of consumer drones have thus far evaded regulation.

Yet, it is roundly appreciated that the most notable drone mishaps — the errant landings on the White House lawn or the U.S. Open tennis stadium, the miscreants that grounded fire-fighting efforts in California's wildfires last year — stem from consumer drone misuse.

So how did we arrive in this counterintuitive state?

Faced with escalating truth that commercial drones were evolving into paradigm-shifting applications, in 2012, Congress enacted the FAA Modernization and Reform Act, directing the FAA to integrate unmanned aircraft systems (UAS) (i.e., drones) into the National Airspace System by this past September.

In the years since, commercial drone operations were effectively banned in the U.S. absent operators obtaining a "Section 333 exemption." Applicants were required to demonstrate on a case-by-case basis that a specified use of an identified drone type under delineated operating conditions would not pose a risk within the relevant airspace. Now totaling over 2,200 such exemptions, these Section 333 permits have allowed hundreds of drone-related service providers to take flight for myriad commercial applications. The vast majority of these exemptions are held by small businesses.

Working slightly behind schedule, the FAA published its Small UAS Notice of Proposed Rulemaking last February, laying out suggested regulations to be implemented mid-2016. Those rules would require that small commercial drones:

- be operated only by individuals obtaining an unmanned aircraft operator certificate;
- be operated only during daylight

hours, go no faster than 100 mph, and fly no higher than 500 feet;

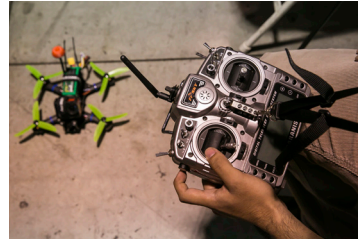
- remain in plain unaided sight, known as visual line-of-sight (VLOS), of the operator or an additional visual observer (precluding package delivery drones);
- be operated so that the drone defers/gives way to any manned aircraft; and
- avoid flight over persons not involved in the operation of the drone unless that person is under a covered structure.

Drone lobbying organizations have goaded the FAA to keep technological pace even swifter. They have urged the FAA to allow certain beyond visual line-of-sight (BVLOS) flight as well as night time drone operations. And they protest against categorical restrictions on operating over uninvolved persons and from prohibiting multiple drone operations by a single operator. However, they do applaud the FAA for favoring performance over design standards.

Missing in all of this are rules applying to recreational users. Congress and the FAA have avoided prescribing mandatory rules to model airplanes, even as these aircrafts morphed into our modern day drones. In the 1980s, the FAA cautioned that while "model aircraft can at times pose a hazard to full-scale aircraft in flight and to persons or property on the surface," because of the lower risk of unmanned hobbyist planes, the FAA would only "encourage voluntary compliance with [provided] safety standards for model aircraft operators." The voluntary standards suggest restricting flight over populated areas and to 400 feet, direct that operators give right of way to "full-scale aircraft," and require flight permission when near airports.

In 2007, the FAA's voluntary guidelines were clarified to emphasize the FAA's oversight authority of all drone operations in U.S. skies. However, regarding model aircraft flown for recreation, the FAA simply reiterated its voluntary guidelines.

Five years later, the same 2012 Modernization Act that compels the FAA to integrate commercial drones into our national airspace specifically prohibits it from regulating "model aircraft" flown "strictly for hobby or recreational use." To meet this exception, recreational users must abide a "community-based set of safety guidelines," their craft must be less than 55 pounds, avoid interference with manned aircraft, and steer five miles clear of any airport. Notably, the act omits any height limit, although such recommended limit appears in most community-based guide-



NYT Photo

Competitors navigate drones using a remote control at the California Cup in Pomona, Nov. 7.

lines. While not providing any set fines or penalties for violations, the Modernization Act says model aircraft operators could be subject to an FAA "enforcement action" against "persons ... who endanger the safety of the national airspace system."

Still, no statutory or regulatory mechanism presently compels recreational users to seek out and join these responsible community hobbyist groups, let alone undertake the education recommended by such groups. Given our click-and-buy, instant gratification culture, drone manufacturers face the troubling prospect that most rookie drone pilots will simply fly their crafts with only the manufacturer-provided in-the-box instruction and video/online education tools.

The Christmas consumer drone bonanza, however, may have shocked the FAA to action. In October, it formed a task force to develop a nationwide registration process for drones, to be effective as early as this month. Reports suggest registration will be web-based, that the onus will be on owners and operators to register, that registration will be required before operation, and that the registration process may include provisions to "encourage or require UAS operators to become educated on basic safety rules." Registration treatment for previously sold drones is unspecified.

In the face of the FAA's practical "no fly zone" for consumer drone regulation, Congress may be jumping into the breach. Calling the FAA's statutory preclusion from consumer drone regulation a "loophole [that] must be closed," Sens. Dianne Feinstein and Charles Schumer have co-sponsored the Consumer Drone Safety Act to authorize the FAA to issue safe flight rules specifically targeting "consumer drones that are flown for hobby or recreational use ... not operated in accordance with a community-based set of guidelines." The act applies a technology-intensive approach, requiring all new consumer drones to be pre-loaded

with (1) software-enabled "geo-fencing" precluding flight above certain altitudes or within a given distance from airports or other landmarks; (2) autonomous systems enabling sensing and avoidance of other aircraft; (3) transponders that signal a drone's location to air traffic control and other planes; and (4) a means to identify software tampering.

The act, now before the Commerce, Science and Transportation Committee, has stoked controversy and is viewed as a danger to the industry — few drones, if any, currently possess the full panoply of bells and whistles required by the act. The industry is asking Congress and the FAA to apply a "risk-based technology-neutral" approach designed to "accommodate any and all UAS technology innovations by using flexible standards ... rather than continually proposing new rules for different UAS technologies."

Many states also have cracked down on consumer drones. California Gov. Jerry Brown has vetoed several drone bills as chilling innovation and over-regulating. And lobbyist groups argue that these state laws are preempted since the FAA has authority over U.S. skies.

By all accounts, the U.S. drone industry has reached a strange and delicate crossroads. Strange, because the thousands of commercial entities to be affected by the FAA's small UAS rules are already those most likely to insure against risk, require documented operator proficiency, and avoid embarrassing and press-worthy bloopers — yet the hundreds of thousands of consumer drone newbies can take delivery and to the skies under voluntary standards. Delicate, because hundreds of millions of dollars and tens of thousands of new jobs are being poured into a booming field that may have to press reset if future drones must possess new technologies.

It remains to be seen whether Congress continues down the technology-intensive path or responds to the industry outcry to apply the more performance and risk-based standards. A multi-billion dollar industry awaits a clear flight plan.



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