Uncharted Territory

UAS Regulations Affecting Public Aircraft Operations

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It happens thousands of times each day – police are dispatched to an in-progress incident. It could be a crime, missing child, major accident or any number of other calls for service. For the commander on the ground, critical information is required immediately to effectively manage the incident and bring it to a successful conclusion. Today, if the resource is available, air support may be requested to assist; however, critical time could be lost if there is a delay in getting the aircraft on station. In the future, however, the commander may retrieve a backpack-size, hand-launched unmanned aerial system (UAS) from their vehicle, unfold the wings or snap its pieces together and deploy it for immediate optical or infrared video feed of the situation as it unfolds. With real time information, many incidents will be handled better than they are today. The possibilities, ranging from incident management to investigations to training, are literally endless.

On the battlefields of Iraq and Afghanistan, over 700 UASs of all sizes have flown thousands of hours successfully. Hand-launched systems have given warfighters on the ground the ability to see "over the next hill" without endangering troops. In much the same vein, crimefighters will now have the ability to see "over the incident" to give critical information to decision makers.

Technologically, the future is now; there are more than 600 systems being developed or market-ready worldwide. The regulatory environment is, however, lagging behind, limiting the potential of this tool. This article will describe the current state of UAS regulations in the U.S. as they relate to non-military, public aircraft operations.

The FAA

Several significant events occurred in 2005 relating to UAS operations. First, the FAA established the Unmanned Aircraft Systems Program Office (AIR-160) to manage integration of UAS operations into the national airspace system (NAS). The direction given to the new office by Associate Administrator Nick Sabatini was to "do no harm" and to have no adverse impact on the thousands of aircraft already operating in the NAS. The focus of the FAA thus far has been, by necessity, meeting the needs of the military and homeland security. However, as more operators have emerged, they have begun to address the regulatory needs of those groups, as well. Thus far, three documents have been used to regulate UAS operations: FAA Order 7610.4, Special Military Operations; AFS-400 UAS Policy 05-01 and Federal Register Notice, docket FAA-2006-25714, Unmanned Aircraft Operations in the National Airspace System; and Advisory Circular 91-57, Model Aircraft Operating Standards. Each of these will be discussed; however, a review of certain portions of the Federal Aviation Regulations is appropriate. Some of

this review will seem elementary, but the significance will be obvious when the regulatory documents are discussed.

Federal Aviation Regulations

Federal Aviation Regulations (FARs) define an aircraft as a device that is used or intended to be used for flight in the air. Thus, a UAS, no matter how small, qualifies as an aircraft. Further, they define two types of aircraft: civil and public. Public aircraft are aircraft owned by a government; civil aircraft are anything other than public aircraft. Public aircraft conducting operations for commercial purposes, or carrying an individual other than a crewmember, or qualified non-crewmember, lose their status as public aircraft and become civil aircraft. Status depends on the type of operation the aircraft is conducting at the time, rather than the aircraft itself.

The regulatory difference between civil and public aircraft is significant, with public aircraft being statutorily exempt from most types of FAA regulation. For example, Part 61.3 states that a person may not act as pilot in command of a civil aircraft unless that person has a valid pilot certificate. Thus, pilots of public aircraft are not required to hold a FAA-issued pilot certificate. Further, public aircraft do not have to prove aircraft airworthiness to the FAA. For a final example (one that involves airspace) Part 91.131 addresses operations in Class B airspace. The regulation states that no person may take off or land a civil aircraft at an airport within Class B airspace unless the pilot holds at least a private pilot certificate. Again, since the requirement pertains to civil aircraft, there is no such requirement for public aircraft. These examples show the extent of the limited regulatory authority the FAA has over public aircraft in such critical areas as pilot certification, airworthiness and airspace.

The only FARs applicable to public aircraft are those that are directed at “an aircraft.” These are applicable to all aircraft, both civil and public, and are, for the most part, general operating and flight rules.

FAA Regulatory Documents

The first document being used by the FAA to regulate UAS operations is FAA Order 7610.4K, Special Military Operations, specifically Section 9, Unmanned Aircraft. This document governs how the FAA handles military requests to fly UASs in civil airspace. The FAA has also applied the provisions of this order to non-military UAS operations. Of particular note are regulations governing UASs that weigh less than 55 pounds and operate at or below 1,000 feet AGL. For these aircraft, the following guidelines apply:

Operations must be conducted over unpopulated areas.

When flying within five miles of an airport, the user shall coordinate with the airport operator.

When flying more than five miles from an airport, the operator shall contact the nearest Flight Service Station or ATC facility to coordinate the mission.

A NOTAM shall be published.

Visual contact with the UAS
must be maintained.

The UAS operator must yield the right of way to and avoid flying in the proximity of manned aircraft.

UASs that do not fall within these guidelines must meet all equipage requirements for the class of airspace of intended operations, including a detect-and-avoid system. If unable to conform to this, the method to gain access to the NAS is through a Certificate of Authorization (COA).

A brief mention of the detect-and-avoid systems is necessary. In manned aircraft, the pilot uses their eyes to see and avoid other aircraft. Since UASs are unmanned, but need to have an equivalent level of safety, they will be required to have equipment to sense and detect other aircraft. No such equipment has been developed yet and is not expected until 2011. Given this, unless the UAS weighs less than 55 pounds and is operated in accordance with the guidelines above, the flight must have a COA. The order lists nine items that must be included in the COA application. (It should be noted that FAA Order 7610.4K is in the process of being revised.)

On September 16, 2005, the FAA issued AFS-400 UAS POLICY 05-01, which provides guidance to AFS-400 personnel when evaluating applications for a COA. Among other things, this document requires the following for public applicants:

A civil airworthiness certificate, Department of Defense airworthiness certification or specific information as to how airworthiness determination was made is required. During presentations by the FAA, the latter requires complete engineering studies.

Pilots and observers mush have a current third class airman medical certificate.

Pilots must pass the required knowledge test for a private pilot certificate (they are not required to have a pilot certificate) and must meet recent flight experience requirements.

Requires a pilot-in-command.

Mandates that an observer (airborne or ground-based) maintain visual contact with the UAS at all times and have direct communication with the UAS pilot at all times.

The final document is a Federal Register Notice (docket FAA-2006-25714), Unmanned Aircraft Operations in the National Airspace System. This document reviews policy for three types of UASs: public, civil and model airplanes. Of note is the statement that reads, “The current FAA policy for UAS operations is that no person may operate a UAS in the National Airspace System without specific authority. For UASs operating as public aircraft, the authority is the COA. For UASs operating as civil aircraft, the authority is a special airworthiness certificate, and for model aircraft the authority is AC 91-57.”

The immediate impact of this statement would be to negate the ability of a public agency to operate a small UAS in accordance with FAA Order 7610.4K.

Model Aircraft

The FAA has determined that a UAS used for recreation/sport is a model aircraft and governed by Advisory Circular 91-57. A UAS used as a tool to perform any type of work is not a model aircraft. Issued on June 9, 1981, AC 91-57 sets operating standards for model aircraft, including:

The operating site must be a sufficient distance from populated areas.

The model cannot be flown higher than 400 feet above the surface.

When flying within three miles of an airport, the airport operator must be notified, as must ATC if one is located at the airport.

The model must give right of way to and avoid flying in the proximity of manned aircraft. Use of observers is encouraged.

Given the distinction between model aircraft and other UAS operations, AC 91-57 cannot be used by agencies that wish to operate a small UAS without a COA.

Issues

Integrating UAS operations into the NAS is a complex task, and everyone involved in this process must be committed to safety above all else. With that said, there are concerns about the policies being implemented by the FAA. Several law enforcement agencies across the country have attempted to use small UASs, only to be ordered by the FAA to stop. Thus far, all have complied.

In February, after discussion with FAA staff, the author submitted correspondence to them requesting a formal legal opinion on two issues:

1 What is the regulatory effect of FAA orders and policy documents that are not based on, or conflict with, the Code of Federal Regulations? Simply put, to what extent are they enforceable, or are they strictly for guidance?

2 Given that the Code of Federal Regulations exempts public aircraft from most types of FAA regulation, from where in the law does the FAA get the statutory authority to establish and enforce regulations not found in the Code?

While a response has not yet been received, the manager of AIR-160 has assured the author that it is under review. In some respects, the concern here goes beyond UASs. The regulation of public aircraft by the FAA is now fairly well settled after a tumultuous period during the mid-1990s when Congress enacted laws to redefine public aircraft (note the conflicts between current public aircraft regulations and the mandates of UAS POLICY 05-01). The limits of the FAA to impose its administrative decisions on other governments must be determined.

We are at the beginning of the next generation of aircraft. The decisions made today will have great impact on the future. It is incumbent on us to assure that we work with the FAA and other partners to develop regulations that allow us to use UASs to their greatest potential, while at the same time assuring a safe operating environment for all.

Editor's Note: Chief Don Shinnamon serves as the Director of Public Safety for the City of Holly Hill, Florida and is a commercial helicopter pilot. He is also the Chairman of the Aviation Committee for the International Association of Chiefs of Police.