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Outside the Lines

The Sky Isn't Falling — Or Is It? Part 3

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by Ira J. Rimson and Ludwig Benner, Jr.


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Once you have tasted flight you will walk the earth with your eyes turned skyward.
— Leonardo DaVinci

In our past two columns¹, we identified real and potential risks to manned aircraft, and terrestrial humans and property, posed by unmanned aeronautical vehicles (UAVs)², which should give us good reasons to turn our eyes skyward — and be prepared to duck. UAVs have been employed successfully in widespread remote military operations, in many cases operated by pilots located halfway around the world. The success of those military operations has led many non- or quasi-military government agencies to join the queue for unmanned systems of their own. UAVs' advantages are legion: minimizing costs for expensive crews, operating from unimproved strips rather than airports and, best of all, little or no regulation.

But wait! Doesn't the FAA regulate aircraft operations within the U.S.? Well, yes and no. It regulates the operations, maintenance, crew licensing, air vehicle design and certification, and air traffic control for civil aircraft. Public aircraft, on the other hand, get a statutory pass, except for certain operational and traffic control regulations.

By the Air Commerce Act of 1926³, the U.S. Congress charged the Secretary of Commerce with establishing an agency that would foster air commerce⁴, issue and enforce air traffic rules, license pilots, certify aircraft for airworthiness, establish and designate airways, and operate and maintain aids to navigation. Note that these functions originated as adjuncts to "fostering air commerce." When the Congress established the Bureau of Air Commerce in 1934, it made clear that regulations relating to air traffic, airways and air navigation, licensing and certification applied solely to the relatively new endeavor of commercial aviation. Government aviation, having had its head start even before World War I in military applications, apparently was assumed to be capable of fending for itself without additional oversight. After all, at that time, neither military nor commercial aviation was sufficiently commonplace that one could have been expected to interfere with the other.


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¹ "The Sky Isn't Falling — Or Is It? Part 1" *Journal of System Safety*, Vol.44, No. 2, Mar.-Apr. 2008, pp. 4-7; and "The Sky Isn't Falling — Or Is It? Part 2" *Journal of System Safety*, Vol. 44, No. 4, Jul.-Aug. 2008, pp. 4-7.

² In the interest of brevity, we will use the term "UAV" to encompass both "unmanned aeronautical vehicles/UAVs" and "unmanned aeronautical systems/UASs."

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³ Public Law 69-254: Vol. 44, U.S. Statutes @568 *et seq.*

⁴ Air commerce is defined at Title 14, U.S. Code of Federal Regulations, Part 1, §1.1 General Definitions, as "...interstate, overseas, or foreign *air commerce*..." [emphasis added], thus perpetrating a regulatory tautology that has rendered the definition meaningless for decades.



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By the mid-1930s, codification of aviation regulations resulted in bifurcating U.S. aviation operations into two classes, depending on the identity of the operator:

Public aircraft means aircraft used only in the service of a government, or a political subdivision. It does not include any government-owned aircraft engaged in carrying persons or property for hire.

Civil aircraft means aircraft other than public aircraft.^{5,6}

As regulations evolved, they were drafted to differentiate between the two categories by designating those applicable specifically to *civil aircraft*, while *public aircraft* were implicitly included in "none of the above."⁷

The National Airspace System (NAS) is the common network of U.S. airspace: air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures; technical information; and manpower and material. Public aircraft operated within the NAS by or for governments may be exempt from many of those self-same rules, regulations and procedures, including those designed to promote safe aviation operations. There were, and are, logical reasons for exempting certain public aircraft operations from FAA oversight; for example, military and government special-mission operations such as the Department of the Interior's forest fire tankers. But there is little sensible rationale for automatically exempting *all* public aircraft used "only in the service of a government, or a political subdivision," which may operate alongside similar civil aircraft within the NAS.

The exemption applies equally to aircraft, including UAVs, which are operated by civilian contractors under exclusive contract to government entities. From the quoted definition, those might include "political subdivisions" with such limited capabilities as towns or villages. Despite government contracts frequently specifying that civilian contractors must comply with "all applicable" Federal Aviation Regulations (FARs), it is the sole responsibility of the contracting agency to see that the regulations are heeded and enforced. We hesitate to venture an opinion as to how many local public safety agencies possess sufficient knowledge and capability to oversee either their own compliance with the FARs, or that of contractors operating on their behalf.

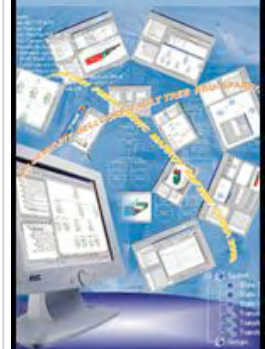
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⁵ "Federal Aviation Regulations": Title 14 U.S. Code of Federal Regulations, Part 1, §1.1 General Definitions.

⁶ For whatever reason, regulatory drafters have for more than half a century chosen to omit a substantive definition of *civil aircraft*.

⁷ Regulators thus accomplished the collectively irrational feats of (1) neglecting to define *civil aircraft* and (2) neglecting to define the regulations that apply to *public aircraft*.

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Oversee — Overlook : What's the Difference?

""Sed quis Custodiet ipsos Custodes?" ("Who shall guard us from the guardians?")

— Juvenal

We haven't found any compelling reason why oversight of public aircraft should not be identical to oversight of civil aircraft within the NAS. In fact, we see no valid argument why *all* aircraft should not be subject to similar rules and regulations, irrespective of operator identity. Justifiable government operations should be eligible for specific exemptions by a competent federal oversight agency, if necessary. Under current automatic exemption practices, there is no assurance that "governments or political subdivisions" can exercise competent oversight over their own aviation activities, much less over parties that contract to supply aviation operations on their behalf. As a result, it is impossible to gauge the public's real risk from operational errors.

The recent Predator-B crash in Arizona, which we addressed in Part 1 of this series, was operated by a contractor to the U.S. Customs and Border Protection agency. That crash gave rise to an unprecedented 22 NTSB safety recommendations. Each recommendation identified acts of commission or omission that could have been identified and rectified before the crash by competent oversight. NTSB Chairman Mark Rosenker characterized those recommendations as "an indication of the scope of the safety issues these unmanned aircraft are bringing into the National Airspace System."⁸ Yet when the Chairman continued with the obvious question: "Why, for example, were numerous [operational failures] even possible while such conditions would never be tolerated in the cockpit of a manned aircraft?"⁹, he begged the underlying question that remains unanswered: Would they have been tolerated in operation of a civil aircraft — manned or unmanned — that was subject to FAA oversight?

No, they wouldn't. Despite identifying numerous specific details that precipitated the Predator crash, and the aforementioned 22 recommendations directed toward preventing the accident that had already happened, the NTSB was curiously silent on the issue of public vs. civil aircraft oversight. In our opinion, absence of that oversight was the necessary and sufficient underlying condition from which all other deficiencies evolved.

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⁸ NTSB Press Release SB-07-52 dated October 16, 2007, p. 2.

⁹ Id.

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Quo Vadis — or, Where Do We Go From Here?

The difficulty lies not so much in developing new ideas as in escaping from old ones.

— John Maynard Keynes

Exempting public aircraft from competent oversight may have been an innocuous concept 80 years ago. Military services were at the forefront of aviation development. Few other government aviation activities existed.¹⁰ Aviation's future lay in commercial applications. The federal government's air safety initiatives were concerned with protecting passengers traveling by commercial airplane. System safety practices lay far in the future.

Today, it's the public that needs protection from unregulated aeronautical hazards. System safety's role is to identify and control hazards before they result in losses. Few potential systemic risks have been as evident as those that have resulted from the deficit of competent oversight of public aircraft operations, yet few have been so unheeded by those in authority to mitigate them. The excuse that "The laws say..." doesn't absolve either government entities or their contractors from their responsibilities to achieve and maintain levels of guardianship for the public's safety *at least* equivalent to those exercised by the FAA over civil aviation.

The risks are well known. They have been demonstrated. Controls exist, exemplified by established oversight mechanisms. The challenge is whether those responsible for the public's safety will take appropriate action to protect it. If they do not, rest assured that the public will demand both answers and accountability at the first occurrence of avoidable injury to innocent persons, or damage to private property.

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¹⁰ Even the Air Mail was originally carried by the U.S. Army Air Service. See Jamieson, C.H., *On Top of the Clouds: The Story of an Airmail Pilot*. XLibris, 2001.

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