

**BEFORE THE
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C.**

IN THE MATTER OF

Petition of AeroCine, LLC for Exemption

Docket Number: FAA-2014-0400

COMMENTS OF THE SMALL UAV COALITION

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August 12, 2014

Filed with www.regulations.gov

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Introduction

The Small UAV Coalition¹ is pleased to provide its comments in support of the AeroCine, LLC (“AeroCine”) petition for exemption under section 333 of the FAA Modernization and Reform Act of 2012 (“the Act”). Members of the Small UAV Coalition share an interest in advancing regulatory and policy changes that will permit the operation of small unmanned aerial vehicles (“UAVs”) in the near term, beyond the line of sight, with varying degrees of autonomy, for commercial, consumer, recreational and philanthropic purposes. Coalition members are concerned that the current pace of regulatory and policy development, particularly in the United States but also in some other countries, has impeded and will impede small UAV development, sales, services, and benefits to consumers here and in those countries. We encourage the Federal Aviation Administration (“FAA”) to establish, as soon as possible, a regulatory environment for small UAVs that will foster safe experimentation and innovation so that globally important development work and operations can occur here in the United States.

Although the focus of these comments is the AeroCine petition, which was filed for U.S. domestic purposes, the Coalition recognizes that UAV policy in the United States may have ramifications worldwide. There are many UAV manufacturers outside of the U.S. who are or soon will be ready to market their products and services in the U.S. and many U.S. corporations have expanded their small UAV development activities overseas. Moreover, other countries may follow or adopt U.S. regulations or policies for their domestic UAV operations. It should be a

¹ Members of the Small UAV Coalition include 3D Robotics, Amazon Prime Air, DJI Incorporated, and Parrot.

U.S. policy imperative, therefore, to foster innovative technologies that promise consumer and public benefits, while addressing safety concerns, as soon as possible. The FAA should work expeditiously to implement its section 333 authority with these policy considerations in mind. The Small UAV Coalition seeks to work with the FAA to expedite testing and operation of small UAVs in the United States. Reasonable regulations, waivers and exemptions, all taking account of safety, privacy and security, will encourage growing domestic and international opportunities.

In general, clarity and clear guidelines are needed from the FAA for development and operation of small UAVs, whether those UAVs are used for recreational or commercial purposes. Because of their size, weight, speed, and the altitude at which they will typically operate, small UAVs pose considerably less safety risk than larger UAVs, including UAVs that are used for defense and other aerospace purposes. The Small UAV Coalition urges the FAA to adopt an evaluation framework for UAV operations under section 333 that weighs the relative safety issues and risks of UAVs by class, from micro UAVs to large, transport category UAVs. The FAA should not adopt artificial distinctions among UAVs, e.g., based upon commercial and non-commercial operations.

AeroCine proposes to operate a battery-powered UAV with twelve counter-rotating propellers “for commercial cinematic, research, and other flight operation within the national airspace system.” Its UAVs, with camera, weigh under 55 pounds (no precise weight or weight range is stated). Its UAVs are designed to hover in place and operate up to a speed of 50 knots. AeroCine’s maximum operating altitude for its UAVs is 400 feet Above Ground Level (AGL). The UAV will be programmed to land automatically if battery power is reduced to 25% of capacity or if communication is lost. AeroCine states its “GPS flight modes” will cause the UAV to hover and then land slowly, “in some instances” at predetermined safety points. AeroCine also states that its pilots may use a video backup if visual sight of the UAV is lost. Its Unmanned Aircraft System (UAS) includes the remote pilot with assistance of a technician and spotter.

The Small UAV Coalition offers the following comments on the AeroCine petition:

Consistent with Section 333, the FAA should authorize UAV operations for AeroCine in the near term, including in advance of the small UAV rulemaking.

In section 333 of the Act, Congress directed the FAA to determine if certain UAV operations may be authorized even in advance of the completion of the small UAV rulemaking mandated in section 322.² The Small UAV Coalition believes the FAA should grant AeroCine’s petition under

² Section 333 states in relevant part:

(a) IN GENERAL.— Notwithstanding any other requirement of this subtitle, and not later than 180 days after the date of enactment of this Act, the Secretary of Transportation shall determine if certain unmanned aircraft systems may operate safely in the national airspace system before completion of the plan and rulemaking required by section 332 of this Act[.]

(b) ASSESSMENT OF UNMANNED AIRCRAFT SYSTEMS— In making the determination under subsection (a), the Secretary shall determine, at a minimum—

(1) which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security; and

Section 333. Section 333 is best understood in conjunction with the mandated small UAV rulemaking under section 332.³ Congress directed the FAA, under section 332, to publish a final small UAV rule by August 2014. In contrast, Congress directed the FAA, under section 333, to determine by August 2013 whether certain unmanned aircraft systems may be operated safely even before completion of the section 332 rulemaking. Although neither deadline has been met, we believe it is imperative that the FAA continue to push forward with both initiatives, expeditiously process and approve petitions filed under section 333, such as the AeroCine petition. AeroCine has made a strong showing justifying a granting of the requested authority.

With respect to all section 333 petitions, the FAA should apply section 333 broadly and flexibly to allow this innovative, nascent industry to flourish. The clear intent of Congress was to direct the FAA to authorize certain UAV operations on an expedited basis, including in advance of completing the rulemaking. In section 332(b)(1), Congress directed the publication of a rule for small unmanned aircraft systems “to the extent the systems do not meet the requirements for expedited operational authorization under section 333 of this Act.” Congress clearly intended for the FAA to proceed expeditiously, on both tracks.

Section 333 directs the FAA to authorize UAV operations that may safely operate in the national airspace system; AeroCine’s petition demonstrates the safety of its proposed operations.

Congress gave the FAA authority to determine whether certain unmanned aircraft systems may be operated safely in the national airspace system,⁴ and listed in section 333 seven factors for the FAA to consider. Unlike the model aircraft concept defined in section 336, the FAA’s safety evaluation of UAV operations does not hinge on whether the operation is public, commercial, recreational or philanthropic. Rather, the FAA is to consider operational risks and steps that can be taken to eliminate or reduce such risks. In the view of the Small UAV Coalition, risk should be the touchstone for any and all FAA rules, waivers, and exemptions governing UAVs. As we discuss in the next section, AeroCine’s petition addresses a number of factors that are relevant to the FAA’s safety determination under section 333.

The Members of the Small UAV Coalition are committed to ensuring the safety of UAV and UAS operations in the National Airspace System. In comments the Air Line Pilots Association (“ALPA”) has filed in other section 333 exemption dockets, ALPA urges that all aircraft, manned and unmanned, in the National Airspace System (“NAS”) “must operate to the same high level of safety.” This position is at odds with the explicit direction by Congress in the Federal Aviation Act, 49 U.S.C. 44701(d) and 44702(b), that FAA promulgate safety regulations considering “(A)

(2) whether a certificate of waiver, certificate of authorization, or airworthiness certification under section 44704 of title 49, United States Code, is required for the operation of unmanned aircraft systems identified under paragraph (1).

(c) REQUIREMENTS FOR SAFE OPERATION. — If the Secretary determines under this section that certain unmanned aircraft systems may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft systems in the national airspace system.

³ There is no pertinent legislative history that sheds any light on the meaning of this provision.

⁴ Subsections 333(a) and (c) provide that safety in the national airspace system is the ultimate consideration.

the duty of an air carrier to provide service with the highest possible degree of safety in the public interest, and (B) differences between air transportation and other air commerce.” Requirements imposed on common carriers under Parts 121 and 135 are much more stringent than requirements imposed on general aviation under Part 91. FAA safety regulation of UAVs should address the risks posed by the particular UAV operations proposed. Certainly requirements may differ depending on whether the UAV will be operating in Class A or Class G airspace; manned aircraft are currently subject to different requirements based on the airspace in which they are operated.

In implementing the Federal Aviation Act as Congress directed, the FAA historically has imposed greater requirements on commercial operators than on general aviation. That distinction derives from a legitimate public concern over passenger safety on manned aircraft that serve as common carriers. These considerations do not apply to operation of small unmanned aerial vehicles. Thus, the FAA should not promulgate different standards for small UAVs based upon whether or not they are operated for commercial purposes. Although Congress in section 336 limited the special rule for model aircraft to aircraft “flown for hobby or recreational purposes,” the FAA need not and should not apply a commercial/non-commercial distinction in its small UAV rulemaking under section 332 or when considering petitions for exemption and other requests under section 333. All regulations and policies with respect to small UAVs should be risk-based, and this approach should be taken in evaluating AeroCine’s petition.

When evaluating the AeroCine petition, the FAA should consider the seven factors Congress directed the FAA to consider, but the FAA should recognize that this list is not exhaustive or requisite.

As AeroCine’s petition shows, factors other than the seven factors set forth by Congress in Section 333 are relevant. In section 333, Congress directed the FAA to consider the following when making section 333 determinations: size, weight, speed, operational capability, proximity to airports, proximity to populated areas, and operation within visual line of sight. But in the words immediately preceding this list, Congress stated that FAA is to consider these factors “at a minimum.” The FAA may consider additional factors relevant to its safety determinations. Relevant factors not enumerated in section 333, but appropriately addressed in AeroCine’s petition, include the altitude of UAV operations and operational experience under Certificates of Authorization or in other countries.

Each of the seven identified factors identified by Congress is potentially relevant to the FAA’s safety risk determination, but not all of these factors are a prerequisite for every exemption. In particular, operations beyond the visual line of sight are not ineligible for section 333 authorization in every case. If Congress intended any factor to be a requirement, it would have mandated such restrictions by law. For example, in the model aircraft definition in section 336(c)(2) of the Act, Congress explicitly excluded aircraft not “flown within visual line of sight of the person operating the aircraft[.]”

Consider the factor of weight. Congress did not provide a weight (or size) limit for model aircraft, and provided that a small UAV (for purposes of the small UAV rulemaking under section 332) could weigh up to 55 pounds (section 331(6)). Congress did not provide a weight (or size) limit in section 333. Whether the weight of the aircraft poses an undue safety risk will depend on

the facts and circumstances of the particular UAV operations: altitude of operation, airspace for operation, and geographic area. It is incumbent on the FAA to evaluate each factor within the context of the applicant's proposed UAV operations. In AeroCine's case, the weight of its UAV is not provided, other than it will weigh fewer than 55 pounds with camera. Considering the altitude and area in which its UAV will be operated, its UAV should pose little safety risk.

Other factors the FAA may consider include speed and proximity of UAV operations to airports and populated areas. With respect to speed, the relevance of this factor depends on the facts and circumstances of the particular UAV operations. The speed of a UAV operating in the same airspace as commercial aircraft operations is a legitimate safety factor. However, the speed of a UAV operating below 400 feet AGL should be evaluated with respect to safely maneuvering, detecting and avoiding. AeroCine's proposed operations below 400 AGL within the visual line of sight, with video backup, pose little safety risk.

The proximity of UAV operations to airports and populated areas are also relevant factors. There are over 19,000 airfields in the United States; of these, only 5,000 or so are public use airfields. Over 3,000 airports are listed in the National Plan of Integrated Airport Systems, only 500 of which have commercial service. The safety risk of a UAV operating close to an airfield that is not public is appreciably less (and easily managed) compared with UAVs operating proximate to commercial service airports such as John F. Kennedy International Airport or Chicago O'Hare International Airport.

The risk of UAV operations that are close to populated areas is highly dependent on the specific facts and circumstances. Congress did not define "populated area" and it is not apparent that this concept is the same as or similar to the concept of "congested area" in 14 C.F.R. 91.119. Similar to the concept of shielding, used in determining electromagnetic interference, tall buildings or structures between airports or populated areas may allow small UAVs to operate without a safety risk, despite the operation's proximity to either. There is often a congregation of people present on a closed set where a UAV will be used for filming; however, the UAV may be operated safely nearby or inside a populated area. AeroCine's operation of a UAV for filming or research will be conducted by a crew of three: the remote pilot, a spotter and a technician. Under these circumstances, operation of its UAV may be permitted even within a populated area, such as an open or closed set for filming, where the actors and film crew are present.

Operational capability of the UAV (another identified factor), which may include whether a UAV can detect and avoid persons and objects (in addition to other aircraft), may determine whether an operation near an airport or a populated area poses an undue safety risk.

We believe the relevant factors for the FAA's UAV evaluation, whether or not identified in section 333, should be viewed through the lens of the particular UAV operations that are proposed, such as AeroCine's. In considering whether to authorize UAV operations, the FAA should evaluate and balance these factors using safety and security as cornerstones, not rigidly adhere to a list of factors that may or may not be relevant or important to particular UAV operations. AeroCine's operational experience on cinematic productions outside of the United States, "without incident," is a factor supporting its exemption request.

Section 333 permits the FAA to authorize UAV operations without type, production, or airworthiness certification; AeroCine has demonstrated that no such certification is necessary.

Congress expressly vested in the FAA authority to determine the substantive safety requirements to impose on UAV operations under section 333. Congress also left to the FAA the question of how authorizations would be granted pursuant to section 333. It tasked the FAA with determining *whether* a certificate of waiver, certificate of authorization or airworthiness certification under 49 U.S.C. 44704 should be required.

The AeroCine petition, similar to other petitions, seeks an exemption from the airworthiness certification regulation.⁵ Given the nature of its proposed operations, we believe an exemption from the certification requirements for restricted category aircraft is warranted. Restricted category aircraft are so named because the FAA certifies aircraft for a special purpose operation, such as agricultural, aerial surveying, patrolling of pipelines and power lines, aerial advertising, and “any other operation specified by the FAA.”⁶ An operator of a restricted category aircraft is required to have obtained type, production, and airworthiness certificates. The expensive and protracted type, production, and airworthiness certification processes are unnecessary if the FAA and the UAV operator agree on certain operational limitations to ensure safety (similar to limitations on an airworthiness certificate).

Section 333 permits the FAA to use any administrative process to authorize UAV operations.

Congress also left to the FAA the question of how the substantive safety requirements under section 333 would be imposed. Congress provided no guidance other than to expedite operational authorizations, including in advance of completing the small UAV rulemaking under section 332. The AeroCine petition for exemption is one of 20 petitions docketed since the FAA invited entities to submit petitions. The FAA has determined, at least initially, to impose safety requirements through the Part 11 exemption process, but the Part 11 process is not required in section 333.

Although the FAA may use the exemption process to authorize UAV operations under section 333, the FAA also has broad authority under the Federal Aviation Act to grant an exemption from any safety regulation “if the Administrator finds the exemption in the public interest.”⁷ In evaluating AeroCine’s petition, and other petitions under section 333, it may be more appropriate to assess the safety impact, if any, of the particular UAV operation that is proposed, rather than to engage in a comparison with Federal Aviation Regulations adopted with manned aircraft in mind.

We encourage the FAA, in granting an exemption petition under section 333, to advise the public, where it is appropriate, that a subsequent petition requesting the same relief under the same material facts will be granted. For the FAA’s own administrative convenience, and for the benefit of UAV innovation, the FAA can and should make public interest and safety

⁵ 14 C.F.R. Part 21.

⁶ 14 C.F.R. 21.25(b).

⁷ 49 U.S.C. 44701(f).

determinations more broadly than in case-by-case exemption proceedings. Two illustrations are found in section 333 petitions for exemption filed to date, including AeroCine's. For example, the Federal Aviation Regulations require that the approved Airplane Flight Manual, the aircraft registration certificate, and the aircraft airworthiness certificate be carried on board the aircraft.⁸ For all small UAVs, regardless of the nature of their UAV operations, these requirements are impractical and may be remedied simply by ensuring these documents are maintained in the UAV operator's identified ground station, which AeroCine proposes to do. Consistent with the intent of section 333, the FAA can impose this requirement across the board. Congress directed the FAA in section 333 to determine which "*types of operations*" may be conducted safely in the national airspace system; thus, Congress contemplated the making of generally applicable safety determinations apart from and in advance of the small UAV rulemaking.

Section 333 authority does not expire on the publication of a small UAV rule.

Congress directed the FAA, under section 333, to determine whether certain unmanned aircraft systems may be operated safely even before completion of the section 332 rulemaking. However, section 333 is not temporary authority which expires with the publication of a final small UAV rule. There is no "sunset" provision. If Congress had intended section 333 authorizations to expire, or that the FAA would no longer entertain petitions for exemption after publication of a final rule, it would have included such a provision. For instance, Congress included a sunset provision for its pilot program for passenger facility fee authorizations at non-hub airports.⁹ Congress inserted sunset triggers in connection with age standards for pilots operating certain types of flights.¹⁰ A view that section 333 authorizations must expire or be superseded by the small UAV rule is unsupported by the statutory text. There is no basis to opine that UAV operations under section 333 and upcoming small UAV rules will not exist in parallel. Rather, section 333 gives the FAA the necessary flexibility to grant case-by-case authority and foster the development of the U.S. UAV industry.

The small UAV rulemaking will benefit from safety determinations made by the FAA under section 333, including making a positive decision on AeroCine's petition in the near term.

The Small UAV Coalition believes the FAA should incorporate the precedents it sets in granting section 333 petitions for exemption in the small UAV Notice of Proposed Rulemaking. We also believe that the experience the FAA and the UAV industry gain from UAV operations authorized under section 333, as well as the experience gained at the FAA test sites and elsewhere, can improve and accelerate the rulemaking process. Allowing AeroCine and other petitioners to begin near-term operations under section 333, with appropriate conditions and limitations, would provide innovators the necessary physical and regulatory space to pioneer technologies and develop viable business models. This experience and knowledge also will allow the FAA to develop the optimal regulatory framework that both promotes safety and supports growth of a very promising industry by allowing the FAA to learn from operations pursuant to section 333 authority and incorporate insights and lessons learned into the regulatory framework, and

⁸ 14 C.F.R. 91.9(b), 91.203(a) and (b).

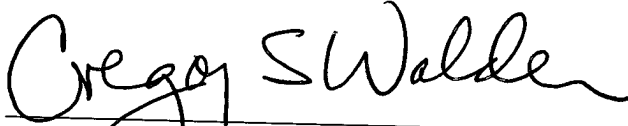
⁹ 49 U.S.C. § 40117(1)(7).

¹⁰ 49 U.S.C. 44729(c)(2) & (d).

allowing manufacturers, operators and other interested parties to effectively participate in the rulemaking process with real-world data, observations and analysis.

Conclusion

AeroCine's petition demonstrates that its UAV operations can be conducted safely, and thus AeroCine should receive authority under section 333. The Small UAV Coalition is pleased to support this petition and to recommend that the FAA apply section 333 flexibly. We believe the relevant factors for the FAA's UAV evaluation – including several factors we have identified that are not enumerated in section 333 – should be viewed through the lens of the particular UAV operations that are proposed. In considering whether to authorize UAV operations, the FAA should evaluate and balance these factors using safety and security as cornerstones. In applying its authority under section 333, and in its rulemaking mandated by section 332, the FAA should create a regulatory environment for UAVs that will foster safe experimentation and innovation so that globally important UAV development work can occur in the United States.



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