

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD

MICHAEL P. HUERTA, Administrator, Federal Aviation Administration,	:	
	:	
	:	Docket No. CP-217
	:	
Complainant,	:	Appeal from March 6, 2014 Decisional Order of Judge Patrick G. Geraghty
	:	
v.	:	
	:	
RAPHAEL PIRKER,	:	
	:	
Respondent.	:	
	:	

RESPONDENT'S APPENDIX OF EXHIBITS

Exhibit A

COPY

Please note that this NTSB Administrative Law Judge's dispositional order is not a final Board decision in this matter. This order is appealable to the full five-member Board and is not of precedential value (see 49 C.F.R. § 821.43).

Served: March 6, 2014

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF ADMINISTRATIVE LAW JUDGES

MICHAEL P. HUERTA, *
ADMINISTRATOR, *
FEDERAL AVIATION ADMINISTRATION, *

Complainant, *

Docket CP-217

v. *

RAPHAEL PIRKER, *

Respondent. *

SERVICE:

Brendan M. Schulman, Esq.
Kramer, Levin, Naftalis & Frankel, LLP
117 Avenue of the Americas
New York, NY 10036
(Certified Mail and FAX)

Brendan A. Kelly, Esq.
Office of the Regional Counsel
FAA Eastern Region
1 Aviation Plaza
Jamaica, NY 11434
(FAX)

DECISIONAL ORDER

This matter is before the Board upon the Appeal of Raphael Pirker (herein Respondent), from an Order of Assessment, which seeks to assess Respondent a civil penalty in the sum of \$10,000.00 U.S. dollars. The Order was issued against Respondent by the Administrator, Federal Aviation Administration (FAA), herein Complainant, and that Order, as provided by Board Rule, serves as the Complaint in this action.

The Complaint is comprised of eleven Numbered Paragraphs of allegations.¹ In the first paragraph, it is alleged that Respondent acted on or about October 17, 2011, as pilot in command of “a Ritewing Zephyr powered glider aircraft in the vicinity of the University of Virginia (UVA) Charlottesville, Virginia...” The next allegation Paragraph avers that that aircraft, “...is an Unmanned Aircraft System (UAS)...”² It is further alleged that Respondent’s flight operation was for compensation, in that payment was received for video and photographs taken during that flight. As a consequence of those allegations, and the remaining factual allegations set forth in the Complaint, it is charged that Respondent acted in violation of the provisions of Part 91, Section 91.13(a), Federal Aviation Regulations (FARs).³

Respondent has filed a Motion to Dismiss, seeking dismissal upon the assertion that the Complaint is subject to dismissal, as a matter of law, in the absence of a valid rule for application of FAR regulatory authority over model aircraft flight operations.

Complainant has submitted a Response⁴ in opposition, arguing that the Complaint is not deficient in that, as the non-moving Party, the allegations of the Complaint must be assumed true, and the Complaint evaluated in manner most favorable to Complainant. This argument is premature. Respondent’s Motion does not challenge the sufficiency of the Complaint, and stipulates therein that, solely for purposes of his Motion, the Complaint’s allegations are to be assumed as true. Any dispute and argument as to the efficacy of the Complaint must be deferred, pending resolution of the threshold issue of Complainant’s authority to exercise FAR regulatory action over model aircraft operations.

14 C.F.R. Part 1, Section 1.1 states as the FAR definition of the term “Aircraft” a “...device that is used or intended to be used for flight in the air...” And Part 91, Section 91.1 states that Part, “...prescribes rules governing operation of aircraft...” Premised upon those FAR provisions and

¹ See Attachment 1, Order of Assessment, for a full statement of the allegations.

² See Attachment 2 Specifications: Ritewing Zephyr 11.

³ Part 91, Section 91.13(a) provides: No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

⁴ The Parties were granted leave to file supplemental Briefs, and all submissions have been considered.

those of 49 U.S.C. Section 40102(a)(6)⁵, Complainant argues that Respondent was operating a device or contrivance designed for flight in the air and, therefore, subject to Complainant's regulatory authority. The term, "contrivance" is used in the 49 U.S.C. Section 40102(a)(6) definition, "aircraft", whereas Part 1, Section 1.1, defines an "aircraft" as a "device"; however, the terms are basically synonymous, as both refer to an apparatus intended or used for flight.⁶

It is argued by Complainant that, under either definition of the term "aircraft", the definition includes within its scope a model aircraft. That argument is, however, contradicted in that Complainant FAA has, heretofore, discriminated in his interpretation/application of those definitions.

Complainant has, historically, in their policy notices, modified the term "aircraft" by prefixing the word "model", to distinguish the device/contrivance being considered. By affixing the word "model" to "aircraft" the reasonable inference is that Complainant FAA intended to distinguish and exclude model aircraft from either or both of the aforesaid definitions of "aircraft".

To accept Complainant's interpretive argument would lead to a conclusion that those definitions include as an aircraft all types of devices/contrivances intended for, or used for, flight in the air. The extension of that conclusion would then result in the risible argument that a flight in the air of, e.g., a paper aircraft, or a toy balsa wood glider, could subject the "operator" to the regulatory provisions of FAA Part 91, Section 91.13(a).

Complainant's contention that a model aircraft is an "aircraft", as defined in either the statutory or regulatory definition, is diminished on observation that FAA historically has not required model aircraft operators to comply with requirements of FAR Part 21, Section 21.171 et seq and FAR Part 47, Section 47.3, which require Airworthiness and Registration Certification for an aircraft. The reasonable inference is not that FAA has overlooked the requirements, but, rather that FAA has distinguished model aircraft as a class excluded from the regulatory and statutory definitions.

⁵ 49 U.S.C. Section 40102(a)(6): Aircraft means any contrivance invented, used, or designed to navigate or fly in the air.

⁶ Webster's New Dictionary of Synonyms, "contrivance" at 188; "device" at 236. Roget's Thesaurus 4th Ed. At 348.1.

While Complainant states in his Sur-Reply Brief that he is not seeking herein to enforce FAA Policy Statements/Notices concerning model aircraft operation, a consideration of those policy notices is informative.⁷

Complainant FAA issued Advisory Circular (AC) AC 91-57, entitled "Model Aircraft Operating Standards", stating the purpose as "...encouraging voluntary compliance with safety standards for model aircraft operators..."⁸ That Complainant FAA issued an AC urging model aircraft operators to voluntarily comply with the therein stated "Safety Standards"⁹ is incompatible with the argument that model aircraft operators, by application of the statutory and regulatory definition, "aircraft" were simultaneously subject to mandatory compliance with the FARs and subject to FAR regulatory enforcement.

That FAA has not deemed every device used for flight in the air to be within the FAR Part 1, Section 1.1 definition, and thus subject to provisions of Part 91 FARs, is illustrated on consideration of the FAA regulatory treatment of Ultralights.

An Ultralight, a device used for flight in the air, is nevertheless governed by the provisions of Part 103 FARs, and whereupon meeting the criteria stated in Section 103.1 is defined, not as an "aircraft", but as an "Ultralight Vehicle", subject only to the particular regulatory provisions of Part 103, FARs.

It is concluded that, as Complainant: has not issued an enforceable FAR regulatory rule governing model aircraft operation; has historically exempted model aircraft from the statutory FAR definitions of "aircraft" by relegating model aircraft operations to voluntary compliance with the guidance expressed in AC 91-57, Respondent's model aircraft operation was not subject to FAR regulation and enforcement.

As previously noted, Complainant has disclaimed that, in this litigation, he is seeking to enforce FAA UAS policy; however, the Complaint asserts that the "aircraft" being operated by Respondent "is an Unmanned Aircraft System (UAS)". Since the classification UAS does not appear in the FARs, it is necessary to examine the FAA policy for the existence of a rule imposing regulatory authority concerning UAS operations.

⁷ FAA Policy Notices are addressed subsequently.

⁸ Attachment 3, Advisory Circular, AC 91-57, June 9, 1981.

⁹ Id. at Paragraph 3.

FAA issued on September 16, 2005, Memorandum AFS-400 UAS Policy 05-01 (Policy 05-01)¹⁰, which was subsequently cancelled, revised, and re-issued on March 13, 2008, as Interim Operational Approval Guidance 08-01 (Guidance 08-01).¹¹ The stated purpose of those Memoranda was to issue guidance, not to the general public, but, rather as internal guidance to be used by the appropriate FAA personnel.¹² Significantly, both Memoranda specifically eschew any regulatory authority of the expressed policy, stating respectively that, “this policy is not meant as a substitute for any regulatory process...”¹³

As policy statements of an agency are not – aside from the fact that the guidance policy therein expressed is stated as for internal FAA use – binding upon the general public¹⁴, and as any regulatory effect is disclaimed, these Policy Memoranda cannot be, and are not, found as establishing a valid rule for classifying a model aircraft as an UAS, or as furnishing basis for assertion of FAR regulatory authority vis á vis model aircraft operations.

On February 13, 2007, FAA Notice 07-01 was published in the Federal Register with the stated purpose/action of serving as “Notice of Policy; opportunity for feedback...”¹⁵ Under the Section captioned “Policy Statement”, it is stated that for an UAS to operate in the National Airspace System (NAS), specific authority is required, and that, pertinent here, for civil aircraft that authority is a special airworthiness certificate. It excludes from that requirement “modelers” – recreational/sport users – and the operational safety authority is iterated as AC 91-57. It further provides that when the model aircraft is used for “business purposes”¹⁶ – AC 91-57 is not applicable, as by such use the model aircraft is deemed an UAS, requiring special airworthiness

¹⁰ Title: Unmanned Aircraft Systems Operations in the U.S. National Airspace System - Interim Operational Approval Guidance.

¹¹ Title: Unmanned Aircraft Systems Operations in the U.S. National Airspace System.

¹² Policy 05-01 at 1; Guidance 08-01 at 2.

¹³ Policy 05-01 at 1; Guidance 08-01 at 2,3.

¹⁴ Syncor Int'l Corp. v. Shalala, 56F.3d 592, 595 (5th Cir. 1995).

¹⁵ 72 Fed. Reg. 6689 (2007).

¹⁶ Id at 6690 (2007), Policy Statement “business” is not defined, so it is unclear if the term is limited to ongoing enterprises held out to the general public, or if it includes a one-time operation for any form or amount of compensation.

certification.¹⁷ In my view, the iteration of the authority of AC 91-57, even though restricted here, undercuts the contention that model aircraft were considered an aircraft as defined in the FARs, or the Code, and subject to Part 91 FAR regulation.

Notice 07-01 expressly states that its action/purpose is to set forth the current FAA policy for UAS operations, and the requirements are stated, as noted above, under the Section captioned "Policy Statement". As self-defined as a statement of policy, it cannot be considered as establishing a rule or enforceable regulation, since, as discussed supra, policy statements are not binding on the general public.

As Notice 07-01 was published in the Federal Register, even though stated as a "Notice of Policy", it could be argued that it could be considered as legislative rulemaking purporting to set out new, mandatory requirements/limitations requiring public compliance.

Notice 07-01 does not, however, meet the criteria for valid legislative rulemaking, as it was not issued as a Notice of Proposed Rulemaking (NPRM), and if intended to establish a substantive rule, it did not satisfy the requirements of 5 U.S.C., Section 553(d), which requires publication of notice not less than 30 days before the effective date.¹⁸ As it is shown as being issued on February 6, 2007, and published as a Notice of Policy February 13, 2007, it fails this requirement.

It is significant that upon comparison of the allegations in the Complaint with the statements put forward in the Policy Statement Section of Notice 07-01, that the allegations made in Complaint Paragraphs 2, 5, and 6, mirror the Policy Notice provisions. That fact contradicts Complainant's assertion that Policy Notice 07-01 plays no part in this litigation. Those allegations are also found as being inconsistent with the assertion that model aircraft were always included in the FAR Part 1, Section 1.1 definition, and thus subject to Part 91 FAR regulation. If so, it was unnecessary to allege – as in Paragraphs 5 and 6 – flight for compensation/payment which appears to be for the purpose of re-classifying Respondent's model aircraft as an UAS within the terminology of Notice 07-01.¹⁹

¹⁷ 72 Fed. Reg. 6690 (2007).

¹⁸ 5 U.S.C. Section 553 – Rulemaking. The exceptions stated in Section 553(d) are not applicable, particularly Exception (2), in that Notice 07-01 does not interpret an existing rule or policy statement – it is a statement of current policy.

¹⁹ On Complainant's theory, Respondent could be charged directly as operating an "aircraft" contrary to the provisions of Section

Congress enacted the FAA Modernization Re-authorization and Reform Act of 2012 (2012 Act), and therein addressed in Subtitle B, Unmanned Aircraft Systems.²⁰ This legislation postdates the events at issue herein; however, the language of provisions of the 2012 Act is instructive.

The 2012 Act requires FAA, through the Secretary of Transportation, to develop a plan for integration of civil UAS into the NAS, specifying that the plan contain recommendations for rulemaking to define acceptable standards for operation and certification of civil UAS.²¹ The 2012 Act further, in the Subsection Rulemaking, specifies a date for publication of “(1) a final rule on small UAS...” to permit their operation in the NAS.²² The 2012 Act also contains a provision stating that the Administrator, FAA, “...may not promulgate any rule or regulation regarding a model aircraft...”, where the model aircraft satisfies the criteria stated therein.²³ It is a reasonable inference that this language shows that, at the time of enactment of the 2012 Act, the legislators were of the view there were no effective rules or regulations regulating model aircraft operation, otherwise, rather than calling for enactment of such, the 2012 Act would have called for action to repeal, amend, or modify the existing rules or regulations, and not require a date for issuance of a final rule.

I find that:

1. Neither the Part 1, Section 1.1, or the 49 U.S.C. Section 40102(a)(6) definitions of “aircraft” are applicable to, or include a model aircraft within their respective definition.²⁴
2. Model aircraft operation by Respondent was subject only to the FAA’s requested voluntary compliance with the Safety Guidelines stated in AC 91-57.

91.13(a). Compensation/payment could arguably then be a factor for resolving: careless or reckless operation; appropriate sanction/severity of a civil penalty.

²⁰ Public Law 112-95, 126 Stat. 72 (February 14, 2012).

²¹ Id at Section 332(a)(1)(2)(1)(b)(i).

²² Id at Section 332(b), Rulemaking.

²³ Id at Section 332(a).

²⁴ Accepting Complainant’s overreaching interpretation of the definition “aircraft”, would result reductio ad absurdum in assertion of FAR regulatory authority over any device/object used or capable of flight in the air, regardless of method of propulsion or duration of flight.

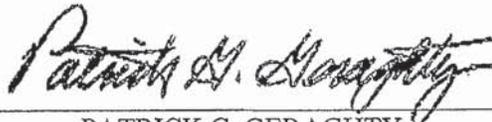
3. As Policy Notices 05-01 and 08-01 were issued and intended for internal guidance for FAA personnel, they are not a jurisdictional basis for asserting Part 91 FAR enforcement authority on model aircraft operations.
4. Policy Notice 07-01 does not establish a jurisdictional basis for asserting Part 91, Section 91.13(a) enforcement on Respondent's model aircraft operation, as the Notice is either (a) as it states, a Policy Notice/Statement and hence non-binding, or (b) an invalid attempt of legislative rulemaking, which fails for non-compliance with the requirement of 5 U.S.C. Section 553, Rulemaking.
5. Specifically, that at the time of Respondent's model aircraft operation, as alleged herein, there was no enforceable FAA rule or FAR Regulation applicable to model aircraft or for classifying model aircraft as an UAS.²⁵

Upon the findings and conclusions reached, I hold that Respondent's Motion to Dismiss must be **AFFIRMED**.

IT IS ORDERED THAT:

1. Respondent's Motion to Dismiss be, and hereby is: **GRANTED**.
2. Complainant's Order of Assessment be, and hereby is: **VACATED AND SET ASIDE**.
3. This proceeding be, and is: **TERMINATED WITH PREJUDICE**.²⁶

ENTERED this 6th day of March, 2014, at Denver, Colorado.



PATRICK G. GERAGHTY
JUDGE

²⁵ On the FAA's decades long holding out to model aircraft operators/public that the only FAA policy regarding model aircraft operations was the requested voluntary compliance with the Safety Guidelines of AC 91-57, it would likely require for assertion of a Rule or FAR authority concerning model aircraft operations, for the FAA to undertake rulemaking as required by 5 U.S.C. Section 553 Rulemaking. Alaska Professional Hunters Association, Inc. v. Federal Aviation Administration, 177 F.3d 1030 (D.C. Cir. 1999), Shell Offshore, Inc. v. Babbitt, 238 F.3d 622 (5th Cir. 2001).

²⁶ In light of the decision reached herein, other issues raised, and argument made need not be, and are not, addressed.

APPEAL (DISPOSITIONAL ORDER)

Any party to this proceeding may appeal this order by filing a written notice of appeal within 10 days after the date on which it was served (the service date appears on the first page of this order). An original and 3 copies of the notice of appeal must be filed with the:

National Transportation Safety Board
Office of Administrative Law Judges
490 L'Enfant Plaza East, S.W.
Washington D.C. 20594
Telephone: (202) 314-6150 or (800) 854-8758

That party must also perfect the appeal by filing a brief in support of the appeal within 30 days after the date of service of this order. An original and one copy of the brief must be filed directly with the:

National Transportation Safety Board
Office of General Counsel
Room 6401
490 L'Enfant Plaza East, S.W.
Washington, D.C. 20594
Telephone: (202) 314-6080
FAX: (202) 314-6090

The Board may dismiss appeals on its own motion, or the motion of another party, when a party who has filed a notice of appeal fails to perfect the appeal by filing a timely appeal brief.

A brief in reply to the appeal brief may be filed by any other party within 30 days after that party was served with the appeal brief. An original and one copy of the reply brief must be filed directly with the Office of General Counsel in Room 6401.

NOTE: Copies of the notice of appeal and briefs must also be served on all other parties to this proceeding.

An original and one copy of all papers, including motions and replies, submitted thereafter should be filed directly with the Office of General Counsel in Room 6401. Copies of such documents must also be served on the other parties.

The Board directs your attention to Rules 7, 43, 47, 48 and 49 of its Rules of Practice in Air Safety Proceedings (codified at 49 C.F.R. §§ 821.7, 821.43, 821.47, 821.48 and 821.49) for further information regarding appeals.

ABSENT A SHOWING OF GOOD CAUSE, THE BOARD WILL NOT ACCEPT LATE APPEALS OR APPEAL BRIEFS.



ATTACHMENT 1

U.S. Department
of Transportation

Federal Aviation
Administration

Eastern Region
Regional Counsel
Telephone: 718 553-3269
Facsimile: (718) 995-5899

1 Aviation Plaza
Jamaica, NY 11434

JUN 27 2013

FEDERAL EXPRESS, REGISTERED MAIL - RETURN RECEIPT REQUESTED, AND
ELECTRONIC MAIL

Raphael Pirker
Melchutistrasse 47
8304 Zurich
Switzerland

Docket No. 2012EA210009

ORDER OF ASSESSMENT

On April 13, 2012, you were advised through a Notice of Proposed Assessment that the FAA proposed to assess a civil penalty in the amount of \$10,000.

After consideration of all the available information, it appears that:

1. On or about October 17, 2011, you were the pilot in command of a Ritewing Zephyr powered glider aircraft in the vicinity of the University of Virginia (UVA), Charlottesville, Virginia.
2. The aircraft referenced above is an Unmanned Aircraft System (UAS).
3. At all times relevant herein you did not possess a Federal Aviation Administration pilot certificate.
4. The aircraft referenced above contained a camera mounted on the aircraft which sent real time video to you on the ground.
5. You operated the flight referenced above for compensation.
6. Specifically, you were being paid by Lewis Communications to supply aerial photographs and video of the UVA campus and medical center.
7. You deliberately operated the above-described aircraft at extremely low altitudes over vehicles, buildings, people, streets, and structures.

8. Specifically, you operated the above-described aircraft at altitudes of approximately 10 feet to approximately 400 feet over the University of Virginia in a careless or reckless manner so as to endanger the life or property of another.
9. For example, you deliberately operated the above-described aircraft in the following manner:
 - a. You operated the aircraft directly towards an individual standing on a UVA sidewalk causing the individual to take immediate evasive maneuvers so as to avoid being struck by your aircraft.
 - b. You operated the aircraft through a UVA tunnel containing moving vehicles.
 - c. You operated the aircraft under a crane.
 - d. You operated the aircraft below tree top level over a tree lined walkway.
 - e. You operated the aircraft within approximately 15 feet of a UVA statue.
 - f. You operated the aircraft within approximately 50 feet of railway tracks.
 - g. You operated the aircraft within approximately 50 feet of numerous individuals.
 - h. You operated the aircraft within approximately 20 feet of a UVA active street containing numerous pedestrians and cars.
 - i. You operated the aircraft within approximately 25 feet of numerous UVA buildings.
 - j. You operated the aircraft on at least three occasions under an elevated pedestrian walkway and above an active street.
 - k. You operated the aircraft directly towards a two story UVA building below rooftop level and made an abrupt climb in order to avoid hitting the building.
 - l. You operated the aircraft within approximately 100 feet of an active heliport at UVA.
10. Additionally, in a careless or reckless manner so as to endanger the life or property of another, you operated the above-described aircraft at altitudes between 10 and 1500 feet AGL when you failed to take precautions to prevent collision hazards with other aircraft that may have been flying within the vicinity of your aircraft.
11. By reason of the above, you operated an aircraft in a careless or reckless manner so as to endanger the life or property of another.

By reason of the foregoing, you violated the following section(s) of the Federal Aviation Regulations:

- a. Section 91.13(a), which states that no person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

NOW THEREFORE, IT IS ORDERED, pursuant to 49 U.S.C. §§46301(a)(1) and (d)(2) and 46301(a)(5), that you be and hereby are assessed a civil penalty in the amount of \$10,000.

You may pay the penalty amount by submitting a certified check or money order payable to the "Federal Aviation Administration" to the Office of Accounting, 1 Aviation Plaza, Jamaica, NY 11434. **In the alternative, you may pay your civil penalty with a credit card over the Internet. To pay electronically, visit the web site at <http://div.dot.gov/fea.htm> and click on "Civil Fines and Penalty Payments" which will bring you to the "FAA Civil Penalty Payments Eastern Region" page. You must then complete the requested information and click "submit" to pay by credit card.**

ATTACHMENT 2



Specifications

MODEL: Zephyr II

MANUFACTURER: RiteWingRC (ritewingrc.com)

DISTRIBUTOR: RiteWingRC

TYPE: electric flying wing

SMALLEST FLYING AREA: football field

IDEAL FOR: intermediate or advanced

WINGSPAN: 56 in.

WING AREA: 770 sq. in.

READY-TO-FLY WEIGHT: 4lbs 7oz

WING LOADING: 16 oz sq.ft

PRICE: \$130.00

CENTER-OF-GRAVITY: 9 3/8" back from nose

GEAR USED

Radio: Spektrum DX8, Orange rx, (2) RiteWingRC metal gear servos-elevons

Motor: RiteWingRC 1200kv, 65amp ESC (ritewingrc.com), Turnigy 5amp 26v BEC (hobbyking.com)

ATTACHMENT 3

AC 91-57

DATE June 9, 1981

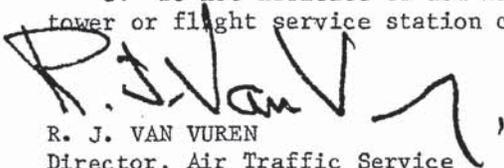
ADVISORY CIRCULAR



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: MODEL AIRCRAFT OPERATING STANDARDS

1. **PURPOSE.** This advisory circular outlines, and encourages voluntary compliance with, safety standards for model aircraft operators.
2. **BACKGROUND.** Modelers, generally, are concerned about safety and do exercise good judgement when flying model aircraft. However, model aircraft can at times pose a hazard to full-scale aircraft in flight and to persons and property on the surface. Compliance with the following standards will help reduce the potential for that hazard and create a good neighbor environment with affected communities and airspace users.
3. **OPERATING STANDARDS.**
 - a. Select an operating site that is of sufficient distance from populated areas. The selected site should be away from noise sensitive areas such as parks, schools, hospitals, churches, etc.
 - b. Do not operate model aircraft in the presence of spectators until the aircraft is successfully flight tested and proven airworthy.
 - c. Do not fly model aircraft higher than 400 feet above the surface. When flying aircraft within 3 miles of an airport, notify the airport operator, or when an air traffic facility is located at the airport, notify the control tower, or flight service station.
 - d. Give right of way to, and avoid flying in the proximity of, full-scale aircraft. Use observers to help if possible.
 - e. Do not hesitate to ask for assistance from any airport traffic control tower or flight service station concerning compliance with these standards.


R. J. VAN VUREN
Director, Air Traffic Service

Initiated by: AAT-220

Served: March 10, 2014

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF ADMINISTRATIVE LAW JUDGES

MICHAEL P. HUERTA, *
ADMINISTRATOR, *
FEDERAL AVIATION ADMINISTRATION, *

Complainant, *

Docket CP-217

v. *

RAPHAEL PIRKER, *

Respondent. *

SERVICE:

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117 Avenue of the Americas
New York, NY 10036
(Priority Mail and FAX)

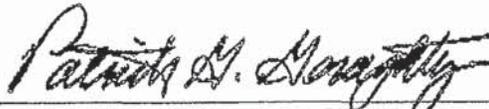
Brendan A. Kelly, Esq.
Office of the Regional Counsel
FAA Eastern Region
1 Aviation Plaza
Jamaica, NY 11434
(FAX)

ERRATA

The following corrections are to be made to the Decisional Order entered March 6, 2014:

1. Page 7, Paragraph No. 1:
Reads: 1. Neither...Section 1.1, or the...
Should read: 1. Neither ...Section 1.1, nor the...
2. Page 7, Note 24:
Reads: ...would result reduction ad obsurdum...
Should read: ...would result reduction ad absurdum...

ENTERED this 10th day of March, 2014, at Denver, Colorado.



PATRICK G. GERAGHTY
JUDGE

Exhibit B

Rules and Regulations

Federal Register

Vol. 72, No. 29

Tuesday, February 13, 2007

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 91

[Docket No. FAA-2006-25714; Notice No. 07-01]

Unmanned Aircraft Operations in the National Airspace System

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of policy; opportunity for feedback.

SUMMARY: This document clarifies the FAA's current policy concerning operations of unmanned aircraft in the National Airspace System.

FOR FURTHER INFORMATION CONTACT: Kenneth D. Davis, Manager, Unmanned Aircraft Program Office, Aircraft Certification Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, (202) 385-4636, e-mail: kenneth.d.davis@faa.gov.

Background

Simply stated, an unmanned aircraft is a device that is used, or is intended to be used, for flight in the air with no onboard pilot. These devices may be as simple as a remotely controlled model aircraft used for recreational purposes or as complex as surveillance aircraft flying over hostile areas in warfare. They may be controlled either manually or through an autopilot using a data link to connect the pilot to their aircraft. They may perform a variety of public services: Surveillance, collection of air samples to determine levels of pollution, or rescue and recovery missions in crisis situations. They range in size from wingspans of six inches to 246 feet; and can weigh from approximately four ounces to over 25,600 pounds. The one thing they have in common is that their numbers and

uses are growing dramatically. In the United States alone, approximately 50 companies, universities, and government organizations are developing and producing some 155 unmanned aircraft designs. Regulatory standards need to be developed to enable current technology for unmanned aircraft to comply with Title 14 Code of Federal Regulations (CFR).

The Federal Aviation Administration's current policy is based on whether the unmanned aircraft is used as a public aircraft, civil aircraft or as a model aircraft.

Unmanned Aircraft Systems Operating as Public Aircraft

The most common public use of unmanned aircraft today in the United States is by the Department of Defense. U.S. operations in Iraq, Afghanistan and elsewhere have fueled a huge increase in unmanned aircraft demand. In Iraq alone, more than 700 unmanned aircraft are in use for surveillance and weapons delivery.

Other agencies have also found public uses for unmanned aircraft. For example, the Customs and Border Protection uses them to patrol along the US/Mexican border. In the future, unmanned aircraft could be used to provide first responder reports of damage due to weather or other catastrophic causes.

In response to this growing demand for public use unmanned aircraft operations, the FAA developed guidance in a Memorandum titled "Unmanned Aircraft Systems Operations in the U.S. National Airspace System—Interim Operational Approval Guidance" (UAS Policy 05-01). In this document, the FAA set out guidance for public use of unmanned aircraft by defining a process for evaluating applications for Certificate(s) of Waiver or Authorization (COA's) for unmanned aircraft to operate in the National Airspace System. The concern was not only that unmanned aircraft operations might interfere with commercial and general aviation aircraft operations, but that they could also pose a safety problem for other airborne vehicles, and persons or property on the ground. The FAA guidance supports unmanned aircraft flight activity that can be conducted at an acceptable level of safety. In order to ensure this level of safety, the operator is required to establish the Unmanned Aircraft

System's (UAS) airworthiness either from FAA certification, a DOD airworthiness statement, or by other approved means. Applicants also have to demonstrate that a collision with another aircraft or other airspace user is extremely improbable as well as complying with appropriate cloud and terrain clearances as required. Key to the concept are the roles of pilot-in-command (PIC) and observer. The PIC concept is essential to the safe operation of manned aircraft. The FAA's UAS guidance applies this PIC concept to unmanned aircraft and includes minimum qualifications and currency requirements. The PIC is simply the person in control of, and responsible for, the UAS. The role of the observer is to observe the activity of the unmanned aircraft and surrounding airspace, either through line-of-sight on the ground or in the air by means of a chase aircraft. In general, this means the pilot or observer must be, in most cases, within 1 mile laterally and 3,000 feet vertically of the unmanned aircraft. Direct communication between the PIC and the observer must be maintained at all times. Unmanned aircraft flight above 18,000 feet must be conducted under Instrument Flight Rules, on an IFR flight plan, must obtain ATC clearance, be equipped with at least a Mode C transponder (preferably Mode S), operating navigation lights and / or collision avoidance lights and maintain communication between the PIC and Air Traffic Control (ATC). Unmanned aircraft flights below 18,000 feet have similar requirements, except that if operators choose to operate on other than an IFR flight plan, they may be required to pre-coordinate with ATC.

The FAA has issued more than 50 COA's over the past 2 years and anticipates issuing a record number of COA's this year.

For more information, Memorandum on UAS Policy (05-01) and other policy guidance is available at the FAA Web site: <http://www.faa.gov/uas>.

Unmanned Aircraft Systems Operating as Civil Aircraft

Just as unmanned aircraft have a variety of uses in the public sector, their application in commercial or civil use is equally diverse. This is a quickly growing and important industry. Under FAA policy, operators who wish to fly an unmanned aircraft for civil use must

obtain an FAA airworthiness certificate the same as any other type aircraft. The FAA is currently only issuing special airworthiness certificates in the experimental category. Experimental certificates are issued with accompanying operational limitations (14 CFR 91.319) that are appropriate to the applicant's operation. The FAA has issued five experimental certificates for unmanned aircraft systems for the purposes of research and development, marketing surveys, or crew training. UAS issued experimental certificates may not be used for compensation or hire.

The applicable regulations for an experimental certificate are found in 14 CFR 21.191, 21.193, and 21.195. In general, the applicant must state the intended use for the UAS and provide sufficient information to satisfy the FAA that the aircraft can be operated safely. The time or number of flights must be specified along with a description of the areas over which the aircraft would operate. The application must also include drawings or detailed photographs of the aircraft. An on-site review of the system and demonstration of the area of operation may be required. Additional information on how to apply for an experimental airworthiness certificate is available from Richard Posey, AIR-200, (202) 267-9538; e-mail: richard.posey@faa.gov.

Recreational/Sport Use of Model Airplanes

In 1981, in recognition of the safety issues raised by the operation of model aircraft, the FAA published Advisory Circular (AC) 91-57, Model Aircraft Operating Standards for the purpose of providing guidance to persons interested in flying model aircraft as a hobby or for recreational use. This guidance encourages good judgment on the part of operators so that persons on the ground or other aircraft in flight will not be endangered. The AC contains among other things, guidance for site selection. Users are advised to avoid noise sensitive areas such as parks, schools, hospitals, and churches. Hobbyists are advised not to fly in the vicinity of spectators until they are confident that the model aircraft has been flight tested and proven airworthy. Model aircraft should be flown below 400 feet above the surface to avoid other aircraft in flight. The FAA expects that hobbyists will operate these recreational model aircraft within visual line-of-sight. While the AC 91-57 was developed for model aircraft, some operators have used the AC as the basis for commercial flight operations.

Policy Statement

The current FAA policy for UAS operations is that no person may operate a UAS in the National Airspace System without specific authority. For UAS operating as public aircraft the authority is the COA, for UAS operating as civil aircraft the authority is special airworthiness certificates, and for model aircraft the authority is AC 91-57.

The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes.

The FAA has undertaken a safety review that will examine the feasibility of creating a different category of unmanned "vehicles" that may be defined by the operator's visual line of sight and are also small and slow enough to adequately mitigate hazards to other aircraft and persons on the ground. The end product of this analysis may be a new flight authorization instrument similar to AC 91-57, but focused on operations which do not qualify as sport and recreation, but also may not require a certificate of airworthiness. They will, however, require compliance with applicable FAA regulations and guidance developed for this category.

Feedback regarding current FAA policy for Unmanned Aircraft Systems can be submitted at <http://www.faa.gov/uas>. (Scroll down to the bottom of the page and find *Contact UAPO*. Click into this link.)

Issued in Washington, DC, on February 6, 2007.

Nicholas Sabatini,

Associate Administrator for Aviation Safety.

[FR Doc. E7-2402 Filed 2-12-07; 8:45 am]

BILLING CODE 4910-13-P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 110

[CGD01-06-027]

RIN 1625-AA01

Anchorage Regulations; Port of New York

AGENCY: Coast Guard, DHS.

ACTION: Final rule.

SUMMARY: The Coast Guard is revising the duration vessels are authorized to

anchor in specific anchorage grounds within the Port of New York and New Jersey (PONYNJ). This action is necessary to facilitate safe navigation and provide for the overall safe and efficient flow of waterborne commerce. This action is intended to better facilitate the efficient use of the limited deep water anchorage grounds available in PONYNJ.

DATES: This rule is effective March 15, 2007.

ADDRESSES: Comments and material received from the public, as well as documents indicated in this preamble as being available in the docket, are part of docket (CGD01-06-027) and are available for inspection or copying at Waterways Management Division, Coast Guard Sector New York, 212 Coast Guard Drive, Room 321, Staten Island, New York 10305 between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Lieutenant Commander M. McBrady, Waterways Management Division, Coast Guard Sector New York at (718) 354-2353.

SUPPLEMENTARY INFORMATION:

Regulatory Information

On November 16, 2006, we published a notice of proposed rulemaking (NPRM) entitled Anchorage Regulations; Port of New York in the **Federal Register** (71 FR 66708). We received no letters commenting on the proposed rule. No public meeting was requested, and none was held.

Background and Purpose

The Coast Guard is revising the duration that vessels are authorized to anchor in Federal Anchorage Grounds 19, 21-A, 21-B, 21-C, and 25 in the Port of New York and New Jersey (PONYNJ), 33 CFR 110.155 (c)(5), (d)(10)-(12), and (e)(1), respectively. These revisions are necessary due to the limited amount of deep water anchorage space available in the Hudson River, Upper and Lower Bay of New York Harbor.

In recent years, as the number of ships in port has increased and their sizes have grown, the anchorage grounds have frequently been filled to capacity. According to the Harbor Safety, Operations, and Navigation Committee of the Port of New York and New Jersey (HAROPS), which represents a broad spectrum of the local maritime industry, having adequate anchorage space is critical to the overall safety and economic vitality of the port. The limited availability of anchorage space has caused undue economic burden for ships that are forced to anchor outside

Exhibit C



U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Flight Standards Division Manager

P. O. Box 92007
Los Angeles, CA 90009-2007

July 5, 2012

CERTIFIED MAIL No. 7003 2260 0003 7299 2774

Mr. Devin Hendrick
Hover Effect, LLC
505 Nevada ST.
Sausalito, CA 94965

Dear Mr. Hendrick:

My name is Brad Howard, I am the regional Unmanned Aircraft System (UAS) specialist for the Federal Aviation Administration (FAA) Western-Pacific Region. I recently viewed your company's internet website describing your use of a UAS for the purpose of commercial cinematography and other aerial photography. While I applaud your innovative use of the UAS, I must inform you the FAA has taken steps to ensure the public safety regarding all UAS operations. These initial steps take a "do no harm" approach to preserve the world's safest air transportation system. Currently, the FAA authorizes UAS operations by three means.

1. Certificate of Authorization (COA). This authorization allows public entities, i.e., federal, state, and municipal government related organizations, to self certify their aircraft. The FAA reviews the operation to ensure it is in the public interest, safe, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days.
2. Experimental Certification. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Title 14 of the Code of Federal Regulations (14 CFR) Part 21. This allows for experimentation and development of the aircraft, market development, and training of prospective clients. An aircraft issued an experimental airworthiness certificate may not be used to carry passengers or cargo for compensation or hire.
3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight.

The restrictions associated with UAS operations in the national airspace system are necessary at this time to permit the FAA to fully access the technical development of the UAS and put into effect some regulatory bounds to ensure the public safety since most of the UAS currently available are not manufactured and maintained to the standards of manned aircraft. Similarly, most pilots wishing to fly UASs are not trained, certified, or familiar with the rules of the air to ensure the safety of others.

Moreover, the liability implications of such operations without proper authorization from the FAA could be devastating to the person operating the UAS should an unfortunate accident occur.

Based on my review of your company's web site "hovercraft.com", it appears you are currently using a UAS for compensation or hire to produce commercial videos along with still photographs of residential and commercial real estate without proper authorization.

I must insist you to immediately cease these operations until you have the proper authorization, failure to do so could subject you and/or hovercraft to enforcement action by our agency. As I mentioned earlier, some civil operators have been granted experimental certificates for UAS operations, I recommend you to follow suit.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website, located at the following URL: <http://www.faa.gov/about/initiatives/uas/> or if you have any questions, I can be contacted at 310-725-7266.

Sincerely,

Brad Howard
Aviation Safety Inspector



U.S. Department
of Transportation
**Federal Aviation
Administration**

Flight Standards Division
901 Locust St.
Kansas City, MO 64106

August 30, 2012

REGULAR and CERTIFIED MAIL-RETURN RECEIPT REQUESTED
Certificate No. 7006 0100 0001 7196 2697

Mr. Neil Crosby
PhotoPlay Aerials
3225 Old Knoxville Hwy
Maryville, TN 37804

Mr. Crosby,

I am the Unmanned Aircraft System (UAS) Specialist for the Federal Aviation Administration (FAA), Central Region based in Kansas City, Missouri. A recent Knoxville News Sentinel news article, dated August 23, 2012, was brought to our attention. The article features your use of a UAS helicopter for aerial photography.

The FAA has taken steps to ensure the public safety regarding all UAS operations. These initial steps take a "do no harm" approach to preserve the world's safest air transportation system. Currently, the FAA authorizes UAS operations by three means.

1. Certificate of Authorization (COA). This authorization allows public entities, i.e., federal, state, and municipal government related organizations, to self-certify their aircraft. The FAA reviews the operation to ensure it is in the public interest, safe, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days.
2. Experimental Certification. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Code of Federal Regulations (CFR) Part 21.191. CFR 21.191 addresses special airworthiness certificates in the experimental category. Experimental certificates are issued to UAS only for the purposes of research and development, crew training and market survey.

You may petition for an exemption to 14 CFR 21.191. You would also need to petition for an exemption to 14 CFR 91.319 because no person may operate an aircraft that has an experimental certificate for compensation or hire. Petition for exemptions can be submitted on-line at <http://www.faa.gov/regulations/policies/rulemaking/petition/>. If you just want to sell your aircraft, you can do this with an experimental under market survey. In this case you wouldn't need the two exemptions.

Exemption under 14 CFR 21.191 and 14 CFR 91.319 are not easily granted. Please be advised that the application for an experimental certificate will require technical diagrams of your aircraft and radio control equipment. Commercial UAS operations require the operator to hold a FAA pilot certificate with the appropriate ratings. The experimental certificate application process is spelled out in FAA Order 8130.34B (www.faa.gov/go/uas - go to the regulations & policies link).

3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with FAA Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight.

These limited restrictions for UAS operations are necessary. The technical pace of UAS development, and the proliferation of their potential use, has grown exponentially. This growth has caused the FAA to put into effect some regulatory requirements to ensure the public safety.

These requirements are necessary because most of the UAS currently available are not manufactured and maintained to the standards of manned aircraft. Similarly, most operators wishing to fly UASs are not trained, certified, or know the rules of the air to ensure the safety of others both in the air and on the ground.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website, <http://www.faa.gov/about/initiatives/uas/>.

Based on your company's website, you are currently operating a UAS for commercial use without proper authorization. Operations of this kind may be in violation of the Federal Aviation Regulations and result in legal enforcement action. The options available to you are:

- 1) To cease operations;
- 2) To make application for the proper authorization so that the FAA can be assured of the safety of your operation.

As stated earlier, civil operators have been granted experimental certificates for UAS operations. You are invited to make application for the proper authorization. The instructions for making application can be found at <https://ioeaaa.faa.gov/oeaaa/Portal.do>.

For questions, please do not hesitate to contact me.

Sincerely,



Christopher L. Grotewohl
Aviation Safety Inspector
UAS Specialist
NextGen Branch, ACE-220



aerial photography
Christopher Grotewohl to: Info
ACE-220, Nextgen Branch

06/06/2013 08:02 AM

To Whom this may concern:

The Federal Aviation Administration (FAA) has received notification that your company, Hybird Video LLC, is utilizing a Quadcopter UAS for commercial purposes. The use of a Quadcopter UAS for aerial photography is prohibited without proper authorization.

As a FAA Unmanned Aircraft System (UAS) Inspector, I want to share the three possible ways of operating the UA.

1. Certificate of Authorization (COA). This authorization allows public entities, i.e., federal, state, and municipal government related organizations, to self-certify their aircraft. The FAA reviews the operation to ensure it is in the public interest, safe, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days.
2. Experimental Certification. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Code of Federal Regulations (CFR) Part 21.191. CFR 21.191 addresses special airworthiness certificates in the experimental category. Experimental certificates are issued to UAS only for the purposes of research and development, crew training and market survey. Not allowed for aerial photography or for hire.
3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with FAA Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight.

Based on your website and Facebook page, you are operating a UAS for commercial use without proper authorization. Operations of this kind may be in violation of the Federal Aviation Regulations and result in legal enforcement action. The options available to you are 1) to cease operations, or 2) to make application for the proper authorization so that the FAA can be assured of the safety of your operation.

The Grandview and local law enforcement agencies will be notified of this operation.

Sincerely,



Chris Grotewohl

ACE-220 Nextgen Branch UAS
901 Locust Steet, Room 332
Kansas City, MO 64106
T 816-329-3273
F 816-329-3208

From: Alvin A Brunner
To: skeyeball.frank@gmail.com
Cc: [Wayne C Radicke](mailto:Wayne.C.Radicke)
Bcc: [Joan M Seward](mailto:Joan.M.Seward)
Subject: RC Helicopters vs UAS Information
Date: 09/25/2012 08:32 AM

Dear Mr. Frank,

My name is Alvin Brunner, and I am the regional Unmanned Aircraft Systems (UAS) specialist for the Federal Aviation Administration (FAA). An article from the Villages of Park Glen Neighborhood Association newsletter was handed to me, which caught my attention. The article mentions your interest in the use of remote control helicopters (UAS) for aerial photography. I must inform you the FAA has taken steps to ensure the public safety regarding all UAS operations. It appears, based on the article, that you may intend to use UAS without proper authorization, and possibly for commercial purposes. If so, this is in violation of FAA mandates for UAS. UAS are unable to comply with the Code of Federal Regulations (CFR) and need specific FAA authorization. I must advise you to use your UAS in a legal and responsible manner to ensure public safety.

The FAA has the requirement for the regulation and safe operation of the National Airspace System which covers all navigable airspace in the US. Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA)

This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft, and conduct operations in accordance with the COA. The FAA reviews the operation to ensure it is in the public interest, safe, is operated only by the proponent, and does not significantly impact the safety of other air traffic or persons on the ground.

2. Special Authorization Certificate in the Experimental Category

For civil operators, the FAA can issue an experimental aircraft certificate in accordance with 14 CFR Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients. Any other uses under this certificate are prohibited. The experimental certificate application process is spelled out in FAA Order 8130.34B. If you have any additional questions about the Special Airworthiness Certificate or petition process, please contact Thomas Rampulla at thomas.rampulla@faa.gov.

3. Advisory Circular 91-57 for Recreational hobbyists

Those who use UAS only for recreational enjoyment, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight. On February 6, 2007 the FAA published UAS guidance in the Federal Register, **14 CFR Part 91 / Docket No. FAA-2006-25714 / Unmanned Aircraft Operations in the National Airspace System**. Toward the end of the docket it says, "The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes."

UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most operating UASs are not pilot trained, certified, or familiar with 14 CFR to ensure the safety of others. Since the FAA currently does not authorize any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

More information regarding UAS use can be found at the following website:

www.faa.gov/about/initiatives/uas/

The FAA is working diligently to incorporate UAS into the National Airspace, and has been directed by Congress to integrate UAS by September 2015. For your safety, and the safety of others, please do not engage in any commercial UAS operations.

Please contact me at 817-222-5246 with any questions during normal business hours.

Alvin Brunner
Aviation Safety Inspector
NextGen Branch, UAS & AWOPM
817-222-5246
alvin.a.brunner@faa.gov

Any comments you may have on services provided are appreciated.

Please email feedback to:

http://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afs/regional/



U.S. Department
of Transportation
**Federal Aviation
Administration**

MAY 16 2013

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Reed Timmer
Tornado Videos.net/TVNWeather
4060 Nicole Pl
Norman OK 73072

Dear Mr. Timmer,

Our office recently became aware of your web site, www.tornadovideos.net advertising the use of a quadcopter or Unmanned Aircraft System (UAS) for the civil and commercial purposes of selling videos and conducting tornado research.

The Federal Aviation Administration (FAA) has the requirement for the regulation and safe operation of the National Airspace System which covers all navigable airspace in the US. Private land owners do not have any jurisdiction over the airspace above their property and cannot prohibit or allow aviation operations over their land. Unmanned Aircraft are unable to comply with Title 14, Code of Federal Regulations (14 CFR) and need a specific FAA authorization. The purpose of this letter is to inform you the FAA has taken steps to ensure the public safety regarding all UAS operations. Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA)

This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self-certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.

2. Special Authorization Certificate in the Experimental Category

For civil operators, the FAA can issue an experimental aircraft certificate in accordance with 14 CFR Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients.

3. Advisory Circular 91-57 for Recreational hobbyists

Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular (AC) 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight. The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business or research purposes.

The three means of UAS operations above are necessary due to the technical pace of UAS development and the proliferation of aircraft in our National Airspace System. UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. As a result, the FAA has put guidelines into effect to ensure public safety. Similarly, most wishing to operate UASs are not pilot trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While the FAA currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

It appears, based on your website, that you are currently using UAS without proper authorization and for civil or commercial purposes. This is in violation of FAA guidance for UAS. If this is true, I must advise you to cease operations until you have the proper authorization and safety is ensured. Proper authorization as a public entity can be obtained with a COA. If you are not certified to conduct public operations, you would be required to operate under the second option described above. The petition to 14 CFR Section 21.191 and the petition to 14 CFR Section 91.319 are not easily granted, you may go completely through the process and not receive the experimental certificate or the exemption. Also, please be advised that the application for an experimental certificate will require technical diagrams of your aircraft and radio control equipment. The experimental certificate application process is spelled out in FAA Order 8130.34B. If you have any additional questions about the Special Airworthiness Certificate or petition process, please contact Thomas Rampulla at thomas.rampulla@faa.gov.

More information regarding UAS program use can be found at the following websites:

- www.faa.gov/about/initiatives/uas/
- www.faa.gov/about/initiatives/uas/reg/

The FAA is working diligently to incorporate UAS into the National Airspace (NAS) and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease UAS operations as indicated by your website.

Please contact Alvin Brunner, UAS Aviation Safety Inspector, at 817-222-5246 with any questions during normal business hours.

Sincerely,



Alvin A. Brunner III
Aviation Safety Inspector

3. Advisory Circular 91-57 for Recreational hobbyists

Those who use UAS only for recreational enjoyment, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight. On February 6, 2007 the FAA published UAS guidance in the Federal Register, **14 CFR Part 91 / Docket No. FAA-2006-25714 / Unmanned Aircraft Operations in the National Airspace System**. Toward the end of the docket it says, "The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes."

UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most operating UASs are not pilot trained, certified, or familiar with 14 CFR to ensure the safety of others. Since the FAA currently does not authorize any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

More information regarding UAS use can be found at the following websites:

- www.faa.gov/about/initiatives/uas/
- www.faa.gov/about/initiatives/uas/reg/

The FAA is working diligently to incorporate UAS into the National Airspace, and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease any commercial UAS operations as indicated by your website.

Please contact me at 817-222-5246 with any questions during normal business hours.

Sincerely,



Alvin A. Brunner III
Aviation Safety Inspector



U.S. Department
of Transportation
Federal Aviation
Administration

Copy

September 12, 2012

CERTIFIED MAIL -- RETURN RECEIPT REQUESTED

Mark La Boyteaux
Hawkeye Media
3036 Thicket Bend Ct,
Fort Worth, TX 76244

Dear Mr. La Boyteaux,

Our office recently became aware of your services and website advertising the use of remote control helicopters, or unmanned aircraft systems (UAS) for commercial purposes, specifically, aerial photography. This letter is to inform you the Federal Aviation Administration (FAA) has taken steps to ensure the public safety regarding all UAS operations. It appears, based on your website and a complaint of your operation, that you are currently using UAS without proper authorization, and for commercial purposes. If so, this is in violation of FAA mandates for UAS. UASs are unable to comply with the Code of Federal Regulations (CFR) and need specific FAA authorization. I must advise you, and Hawkeye Media, to cease all UAS commercial operations to ensure public safety.

The FAA has the requirement for the regulation and safe operation of the National Airspace System which covers all navigable airspace in the US. Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA)

This authorization is an approved exemption which allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft, and conduct operations in accordance with the COA. The FAA reviews the operation to ensure it is in the public interest, safe, is operated only by the proponent, and does not significantly impact the safety of other air traffic or persons on the ground.

2. Special Authorization Certificate in the Experimental Category

For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Title 14, Code of Federal Regulations (14 CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients. Any other uses under this certificate are prohibited. The experimental certificate application process is spelled out in FAA Order 8130.34B. If you have any additional questions about the Special

Airworthiness Certificate or petition process, please contact Thomas Rampulla at thomas.rampulla@faa.gov.

3. Advisory Circular 91-57 for Recreational hobbyists

Those who use UAS only for recreational enjoyment, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet above ground level, and within visual line of sight. On February 6, 2007, the FAA published UAS guidance in the Federal Register, **14 CFR Part 91 / Docket No. FAA-2006-25714 / Unmanned Aircraft Operations in the National Airspace System**. Toward the end of the docket it says, "The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes."

UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most operating UASs are not pilot trained, certified, or familiar with 14 CFR to ensure the safety of others. Since the FAA currently does not authorize any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

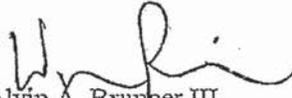
More information regarding UAS use can be found at the following websites:

- www.faa.gov/about/initiatives/uas/
- www.faa.gov/about/initiatives/uas/reg/

The FAA is working diligently to incorporate UAS into the National Airspace, and has been directed by Congress to integrate UASs by September 2015. For your safety and the safety of others, we require you to cease any commercial UAS operations as indicated by your website.

Please contact me at 817-222-5246 with any questions during normal business hours.

Sincerely,


for Alvin A. Brunner III
Aviation Safety Inspector



U.S. Department
of Transportation
**Federal Aviation
Administration**

COPY

April 10, 2013

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Jack Quirk
KJ Productions
309 N. Harrison, Enid, OK 73703

Dear Mr. Quirk,

Our office recently came across the Enid News article on April 7th, and subsequently your web site, www.kjproductions, publicizing the use of a hexacopter unmanned aircraft systems (UAS) for the commercial purposes of aerial photography. The purpose of this letter is to inform you the FAA has taken steps to ensure the public safety, regarding all UAS operations, and to warn you against unauthorized use of UAS.

The Federal Aviation Administration (FAA) has a requirement for the regulation and safe operation of the National Airspace System which covers all navigable airspace in the US. Private land owners do not have any jurisdiction over the airspace above their property and cannot prohibit or allow aviation operations over their land. Unmanned Aircraft are unable to comply with the Code of Federal Regulations (CFR) and need a specific FAA authorization. Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA)
This authorization is an approved exemption which allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self-certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. Special Authorization Certificate in the Experimental Category
For civil operators, the FAA can issue an experimental aircraft certificate, in accordance with Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients.
3. Advisory Circular 91-57 for Recreational hobbyists
Those who use UAS only for recreational enjoyment, and not for compensation or hire, may operate UAS in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight. The FAA recognizes people and companies other than modelers might be flying UAS with the mistaken understanding they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes.

CONCURRENCES
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INITIALS/SIG ABrunner
DATE 4-10-13
ROUTING SYMBOL ASW-290A
INITIALS/SIG ASTrebeck
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ROUTING SYMBOL ASW-220 Manager
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The three means of UAS operations above are necessary due to the technical pace of UAS development and the proliferation of aircraft in our National Airspace System. UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. As a result, the FAA has put guidelines into effect to ensure public safety. Similarly, most wishing to operate UASs are not pilot trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. The FAA currently does not allow any UAS operation to be conducted for commercial purposes. The liability implications of such operations without authorization could be devastating to the person operating the UAS, should an unfortunate accident occur.

It appears, based on the Enid News article and your website, that you are currently using a UAS without proper authorization and for commercial purposes. This is in violation of FAA guidance. If this is true, I must advise you to cease operations until you have the proper authorization and safety is ensured. Proper authorization as a public entity can be obtained with a Certificate of Authorization (COA). If you are not certified to conduct public operations, you would be required to operate under the second option described above. The petition to 14 CFR 21.191 and the petition to 14 CFR 91.319 are not easily granted, you may go completely through the process and not receive the experimental certificate or the exemption. Also, please be advised the application for an experimental certificate will require technical diagrams of your aircraft and radio control equipment. The experimental certificate application process is spelled out in FAA Order 8130.34B. If you have any additional questions about the Special Airworthiness Certificate or petition process, please contact Thomas Rampulla at thomas.rampulla@faa.gov.

More information regarding UAS program use can be found at the following websites:

- www.faa.gov/about/initiatives/uas/
- www.faa.gov/about/initiatives/uas/reg/

The FAA is working diligently to incorporate UAS into the National Airspace (NAS) and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease UAS operations as indicated by your website.

Please contact Alvin Brunner, UAS Aviation Safety Inspector, at 817-222-5246 with any questions during normal business hours.

Sincerely,



Alvin A. Brunner III
Aviation Safety Inspector

The three means of UAS operations above are necessary due to the technical pace of UAS development and the proliferation of aircraft in our National Airspace System. UAS use has grown exponentially and most are not certified, manufactured, or maintained to the standards of manned aircraft. As a result, the FAA has put guidelines into effect to ensure public safety. Similarly, most wishing to operate UASs are not pilot trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While the FAA currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

It appears, based on the article, that you are currently using UAS without proper authorization and for civil or commercial purposes. This is in violation of FAA guidance for UAS. If this is true, I must advise you to cease operations until you have the proper authorization and safety is ensured. Proper authorization as a public entity can be obtained with a Certificate of Authorization (COA). If you are not certified to conduct public operations, you would be required to operate under the second option described above. The petition to 14 CFR section 21.191 and the petition to 14 CFR section 91.319 are not easily granted, you may go completely through the process and not receive the experimental certificate or the exemption. Also, please be advised that the application for an experimental certificate will require technical diagrams of your aircraft and radio control equipment. The experimental certificate application process is spelled out in FAA Order 8130.34B. If you have any additional questions about the Special Airworthiness Certificate or petition process, please contact Thomas Rampulla at thomas.rampulla@faa.gov.

More information regarding UAS program use can be found at the following websites:

- www.faa.gov/about/initiatives/uas/
- www.faa.gov/about/initiatives/uas/reg/

The FAA is working diligently to incorporate UAS into the National Airspace (NAS) and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease UAS operations as indicated by your website.

Please contact Alvin Brunner, UAS Aviation Safety Inspector, at 817-222-5246 with any questions during normal business hours.

Sincerely,



Alvin A. Brunner III
Aviation Safety Inspector



U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Colorado, Idaho, Montana,
Oregon, Utah, Washington,
Wyoming

Flight Standards Regional Office
1601 Lind Ave SW., Suite 560
Renton, Washington 98057

June 11, 2013

Adrian Frothingham
Drones West LLC
119 91st Ave SW
Suite#14-B
Lake Stevens, WA 98258

Mr. Frothingham:

Your company's Unmanned Aircraft System (UAS) operation, described on your DronesWest LLC website has been brought to the attention of the Federal Aviation Administration (FAA), Flight Standards Division, Next Generation Branch, ANM-220. During our conversation on, June 6, 2013, you provided information on your operation that includes flying uncertified small UAS helicopters for hire for aerial photography.

The following steps are in place to ensure the public safety regarding all UAS operations in the National Airspace System (NAS)

Currently, the FAA authorizes UAS operations in the NAS by **three** means:

1. **Certificate of Authorization (COA).** This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. **Special Authorization Certificate in the Experimental Category.** For civil operators, the FAA can issue an experimental aircraft certificate in accordance with the Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients. *Airworthiness Certification under the experiential category does not allow for commercial operations per CFR 91.319 (a) (2)*
3. **Advisory Circular 91-57** for recreational hobbyists. Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet AGL and within visual line of sight. The FAA Reauthorization Act of 2012, now Public Law 112-95, Section 336, also defines Model Aircraft and their allowed uses, restricting their operation to visual line of sight operations and to hobby or recreational purposes.

Based on your described UAS operations, you are currently using a UAS without proper authorization and for commercial purposes. This is in violation of FAA policy and guidance for UAS. You are requested to utilize a manned asset for your operations until the FAA can be assured of the safety of your operation and that you have the proper authorization. If you can declare yourself as a public entity, you may make a formal on-line application for a COA by contacting Mr. Randy Willis, (202) 385-4661, to set up an on-line application account if you desire. If you are not certified to conduct public operations and would like to consider a Special Authorization Certificate, we can put you in touch with the program office in Washington, DC for consideration. If you intend to operate your aircraft for recreational purposes, you must comply with AC-91-57 and Public Law 112-95 and operate in a remote, unpopulated area.

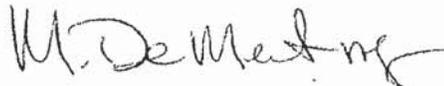
More information regarding UAS use can be found at the FAA UAS Integration Office's website: <http://www.faa.gov/about/initiatives/uas/>. The programs and policy page may also be of interest to you: Unmanned Aircraft Systems (UAS) - Regulations & Policies.

The FAA is working diligently to incorporate UAS into the NAS and has been directed by Congress to integrate UAS by September 2015.

Thank you for your cooperation and understanding in this manner, it is greatly appreciated.

If you have any questions, please contact me by phone (425) 917-6566 or email me at Michael.DeMent-Myers@faa.gov

Sincerely,



Michael DeMent-Myers
Aviation Safety Inspector
ANM220 NextGen

Michael Harris

Your Unmanned Aircraft System (UAS) operation, described on your Elevated Work s website has been brought to the attention of our office. In our conversation today you provided information on your operation that includes flying uncertified small UAS helicopters for hire as an aerial photographer.

Several attached documents from your website confirm your commercial UAS activity.

<http://www.elevatedwork.com>

The following steps are in place to ensure the public safety regarding all UAS operations in the National Airspace System (NAS)

Currently, the FAA authorizes UAS operations in the NAS by three means:

1. Certificate of Authorization (COA). This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. Special Authorization Certificate in the Experimental Category. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with the Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients. See the attached FAA Order 8130.34B, *Airworthiness Certification of Unmanned Aircraft Systems and Optionally Piloted Aircraft*. However, obtaining a Experimental Certification does not allow for commercial operations per CFR 91.319 (a) (2)
3. Advisory Circular 91-57 for recreational hobbyists. Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet AGL and within visual line of sight. The FAA Reauthorization Act of 2012, now Public Law 112-95, Section 336, also defines Model Aircraft and their allowed uses, restricting their operation to visual line of sight operations and to hobby or recreational purposes.

These restrictions for UAS operations are necessary at this time due to the technical pace of UAS development and the proliferation of aircraft in NAS. Their potential use has grown exponentially. This has caused the FAA to put into effect some regulatory

limits to ensure the public safety since most of the UAS currently available are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most pilots wishing to fly UASs are not trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While FAA policy currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

Based on your described UAS operations, you are currently using a UAS without proper authorization and for commercial purposes. This is in violation of FAA policy and guidance for UAS. You are requested to utilize a manned asset for your operations until the FAA can be assured of the safety of your operation and that you have the proper authorization. If you can declare yourself as a public entity, you may make a formal on-line application for a COA by contacting Mr. Randy Willis, 202-385-4661 to set up an on-line application account if you desire. If you are not certified to conduct public operations and would like to consider a Special Authorization Certificate, we can put you in touch with the program office in Washington, DC for consideration. If you intend to operate your aircraft for recreational purposes, you should comply with AC-91-57 and Public Law 112-95 and operate in a remote, unpopulated area.

More information regarding UAS use can be found at the FAA UAS Integration Office's website: <http://www.faa.gov/about/initiatives/uas/>. The programs and policy page may also be of interest to you: [Unmanned Aircraft Systems \(UAS\) - Regulations & Policies](#).

The FAA is working diligently to incorporate UAS into the NAS and has been directed by Congress to integrate UAS by September 2015.

Please contact our office any questions.

Sincerely,

Michael Dement-Myers
ANM220 NextGen
425.917.6566

Tim Walker
Elevated Work

Mr. Walker:

Your Unmanned Aircraft System (UAS) operation, described on your Elevated Work's website has been brought to the attention of our office. In our conversation today you provided information on your operation that includes flying uncertified small UAS helicopters for hire as an aerial photographer.

Several attached documents from your website confirm your commercial UAS activity.

<http://www.elevatedwork.com>

The following steps are in place to ensure the public safety regarding all UAS operations in the National Airspace System (NAS)

Currently, the FAA authorizes UAS operations in the NAS by **three** means:

1. Certificate of Authorization (COA). This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. Special Authorization Certificate in the Experimental Category. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with the Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients. See the attached FAA Order 8130.34B, *Airworthiness Certification of Unmanned Aircraft Systems and Optionally Piloted Aircraft*. However, *obtaining a Experimental Certification does not allow for commercial operations per CFR 91.319 (a) (2)*
3. Advisory Circular 91-57 for recreational hobbyists. Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet AGL and within visual line of sight. The FAA Reauthorization Act of 2012, now Public Law 112-95, Section 336, also defines Model Aircraft and their allowed uses, restricting their operation to visual line of sight operations and to hobby or recreational purposes.

These restrictions for UAS operations are necessary at this time due to the technical pace of UAS development and the proliferation of aircraft in NAS. Their potential use has grown exponentially. This has caused the FAA to put into effect some regulatory limits to ensure the public safety since most of the UAS currently available are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most pilots wishing to fly UASs are not trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While FAA policy currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

Based on your described UAS operations, you are currently using a UAS without proper authorization and for commercial purposes. This is in violation of FAA policy and guidance for UAS. You are requested to utilize a manned asset for your operations until the FAA can be assured of the safety of your operation and that you have the proper authorization. If you can declare yourself as a public entity, you may make a formal on-line application for a COA by contacting Mr. Randy Willis, 202-385-4661 to set up an on-line application account if you desire. If you are not certified to conduct public operations and would like to consider a Special Authorization Certificate, we can put you in touch with the program office in Washington, DC for consideration. If you intend to operate your aircraft for recreational purposes, you must comply with AC-91-57 and Public Law 112-95 and operate in a remote, unpopulated area.

More information regarding UAS use can be found at the FAA UAS Integration Office's website: <http://www.faa.gov/about/initiatives/uas/>. The programs and policy page may also be of interest to you: [Unmanned Aircraft Systems \(UAS\) - Regulations & Policies](#).

The FAA is working diligently to incorporate UAS into the NAS and has been directed by Congress to integrate UAS by September 2015.

Tim, thank you for your cooperation and understanding in this manner, it is greatly appreciated.

Please contact our office any questions.

Sincerely,

Michael DeMent-Myers
ANM220 NextGen
425.917.6566

Mr. Matt Gunn
Gunn Photography Services, LLC
6940 Roswell Road
Sandy Springs, GA 30328

Dear Mr. Gunn,

My name is Mike Wilson and, along with my colleague Bruce LaCour, we are the Unmanned Aircraft System (UAS) specialists and Aviation Safety Inspectors within the Federal Aviation Administration (FAA). We are charged with the responsibility of oversight, monitoring, and enforcement of UAS issues and investigations in the Southern Region.

We recently came across your web site, Gunn Photography Services, LLC, advertising the use of the T-Rex 600 Unmanned Aircraft Helicopter for commercial purposes in and around the Atlanta area. While your innovative use of the UAS may be well-intended, I must inform you the FAA has taken steps to ensure the public safety regarding all UAS operations. The FAA currently does not allow any UAS operation to be conducted for commercial purposes. It appears, based on your website, that you are currently using the T-Rex 600 UAS Helicopter without proper authorization and for commercial purposes. This is in violation of FAA guidance for UAS. I must advise you to cease operations until the FAA can be assured of the safety of your operation and you have the proper authorization.

Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA). This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. Special Airworthiness Certificate in the Experimental Category. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients.
3. Advisory Circular 91-57 for Recreational hobbyists. Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular 91-57. This generally applies to operations in

remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight.

These restrictions for UAS operations are necessary at this time due to the technical pace of UAS development and the proliferation of aircraft. Their potential use has grown exponentially. This has caused the FAA to put into effect some regulatory limits to ensure the public safety since most of the UAS currently available are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most pilots wishing to fly UASs are not trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While the FAA currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

If you can declare yourself as a public entity, you may make a formal on-line application for a COA by contacting Mr. Randy Willis, 202-385-4661 to set up an on-line application account if you desire. If you are not certified to conduct public operations and would like to consider a Special Authorization Certificate, we can put you in touch with the program office in Washington, DC for consideration. If you intend to operate your aircraft recreationally, you must comply with AC-91-57 and operate in a remote, unpopulated area.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website: <http://www.faa.gov/about/initiatives/uas/>

The FAA is working diligently to incorporate UAS into the National Airspace (NAS) and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease operations as indicated by your website. Please contact myself, Bruce LaCour (Bruce.Lacour@faa.gov), or any one of us at the Regional office with any questions.

Regards,

Michael K. Wilson
UAS Program Manager
FAA Southern Region
404.305.6038
Mike.Wilson@faa.gov



U.S. Department
of Transportation

**Federal Aviation
Administration**

Orlando FSDO-15
Citadel Int'l, Suite 500
5950 Hazeltine National Drive
Orlando, Florida 32822-5023
(407) 812-7765; Fax: (407) 812 7710

May 21, 2012

SkyGolf Productions
13115 Via Roma Court
Jacksonville, FL 32224

Gentlemen,

My name is Richard Scheibel and I am the Unmanned Aircraft System (UAS) specialists and Aviation Safety Inspector within the Federal Aviation Administration (FAA). I am in charge with the responsibility of oversight, monitoring, and enforcement of UAS issues and investigations in the Orlando FSDO area.

We recently came across your web site, SkyGolf Productions, LLC, advertising the use of An Unmanned Aircraft Helicopter for commercial purposes in and around the Jacksonville Area. While your innovative use of the UAS may be well-intended, I must inform you the FAA has taken steps to ensure the public safety regarding all UAS operations. The FAA currently does not allow any UAS operation to be conducted for commercial purposes. It appears, based on your website, that you are currently using a UAS Helicopter without proper authorization and for commercial purposes. This is in violation of FAA guidance for UAS. I must advise you to cease operations until the FAA can be assured of the safety of your operation and you have the proper authorization.

Currently, the FAA authorizes UAS operations by three means:

1. Certificate of Authorization (COA). This authorization is an approved exemption that allows recognized public entities, i.e. federal, state, and municipal government related agencies and organizations, to self certify their aircraft and conduct operations in accordance with the certificate after approval. The FAA reviews the operation to ensure it is in the public interest, safe, is operated by only the proponent, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days once the proponent completes application and verifies its status as a public entity.
2. Special Airworthiness Certificate in the Experimental Category. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Code of Federal Regulations (CFR) Part 21. This allows for testing and development of the aircraft, market development, and training of pilots and crewmembers for prospective clients.
3. Advisory Circular 91-57 for Recreational hobbyists. Those who use UAS only for recreational enjoyment and not for compensation or hire, operate in accordance with Advisory Circular 91-57. This generally applies to operations in remotely populated areas away from airports, persons and buildings, below 400 feet Above Ground Level, and within visual line of sight.

These restrictions for UAS operations are necessary at this time due to the technical pace of UAS development and the proliferation of aircraft. Their potential use has grown exponentially. This has caused the FAA to put into effect some regulatory limits to ensure the public safety since most of the UAS currently available are not certified, manufactured, or maintained to the standards of manned aircraft. Similarly, most pilots wishing to fly UASs are not trained, certified, or familiar with the Code of Federal Regulations to ensure the safety of others. While the FAA currently does not allow any UAS operation to be conducted for commercial purposes, the liability implications of such operations without authorization could be devastating to the person operating the UAS should an unfortunate accident occur.

If you can declare yourself as a public entity, you may make a formal on-line application for a COA by contacting Mr. Randy Willis, 202-385-4661 to set up an on-line application account if you desire. If you are not certified to conduct public operations and would like to consider a Special Authorization Certificate, we can put you in touch with the program office in Washington, DC for consideration. If you intend to operate your aircraft recreationally, you must comply with AC-91-57 and operate in a remote, unpopulated area.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website: <http://www.faa.gov/about/initiatives/uas/>. The FAA is working diligently to incorporate UAS into the National Airspace (NAS) and has been directed by Congress to integrate UAS by September 2015. For your safety and the safety of others, we require you to cease operations as indicated by your website.

If you have any questions you may contact me at the above number.

Sincerely,

Richard F Scheibel
Aviation Safety Inspector

Q:\TYPING\UNIT1\scheibel/uas/skygolf

a FAA pilot certificate with the appropriate ratings. The experimental certificate application process is spelled out in FAA Order 8130.34B (www.faa.gov/go/uas - go to the regulations & policies link).

3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with FAA Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight.

These requirements are necessary because most of the UAS currently available are not manufactured and maintained to the standards of manned aircraft. Similarly, most operators wishing to fly UASs are not trained, certified, or know the rules of the air to ensure the safety of others both in the air and on the ground.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website <http://www.faa.gov/about/initiatives/uas/>

Based on your university website, you are currently operating a UAS without proper authorization. Operations of this kind may be in violation of the Federal Aviation Regulations and result in legal enforcement action. The options available are 1) to cease operations, or 2) to make application for the proper authorization so that the FAA can be assured of the safety of your operation. The instructions for making application can be found at <https://ioeaaa.faa.gov/oeaaa/Portal.do>.

For questions, please do not hesitate to contact me.

Sincerely,

Christopher L. Grotewohl
Aviation Safety Inspector
UAS Specialist
NextGen Branch, ACE-220
816-329-3273

process is spelled out in FAA Order 8130.34B (www.faa.gov/go/uas - go to the regulations & policies link).

3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with FAA Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight.

These requirements are necessary because most of the UAS currently available are not manufactured and maintained to the standards of manned aircraft. Similarly, most operators wishing to fly UASs are not trained, certified, or know the rules of the air to ensure the safety of others both in the air and on the ground.

More information regarding UAS use can be found at the FAA Unmanned Aircraft Program Office's website <http://www.faa.gov/about/initiatives/uas/>.

Based on your university website, you are currently operating a UAS without proper authorization. Operations of this kind may be in violation of the Federal Aviation Regulations and result in legal enforcement action. The options are 1) to cease operations, or 2) to make application for the proper authorization so that the FAA can be assured of the safety of your operation. The instructions for making application can be found at <https://ioeaaa.faa.gov/oeaaa/Portal.do>.

For questions, please do not hesitate to contact me.

Sincerely,

Christopher L. Grotewohl
Aviation Safety Inspector
UAS Specialist
NextGen Branch, ACE-220
816-329-3273



aerial photography
Christopher Grotewohl to: wollwerth
ACE-220, Nextgen Branch
Bcc: James Bostrom

07/02/2013 08:52 AM

Mr. Wollwerth,

In response to your inquiry in the use of a RC helicopter for aerial photography.

As an FAA Unmanned Aircraft System (UAS) Inspector, I want to share the three possible ways of operating the UA.

1. Certificate of Authorization (COA). This authorization allows public entities, i.e., federal, state, and municipal government related organizations, to self-certify their aircraft. The FAA reviews the operation to ensure it is in the public interest, safe, and does not significantly impact the safety of other air traffic or persons on the ground. To issue a COA normally takes about 60 business days.

Commercial operations including aerial photography for hire are not allowed.

2. Experimental Certification. For civil operators, the FAA can issue an experimental aircraft certificate in accordance with Code of Federal Regulations (CFR) Part 21.191. CFR 21.191 addresses special airworthiness certificates in the experimental category. Experimental certificates are issued to UAS only for the purposes of research and development, crew training and market survey.

Commercial operations including aerial photography or for hire are not allowed.

3. Recreational hobbyists. This group is comprised of those individuals who use UAS only for recreational enjoyment in accordance with FAA Advisory Circular 91-57. This generally applies to operations away from airports, persons, and buildings, below 400 feet above ground level, and within visual line of sight. **Commercial operations including aerial photography for hire are not allowed.**

Based on your email, you are operating a UAS for commercial use without proper authorization. Operations of this kind may be in violation of the Federal Aviation Regulations/Policy and could result in legal enforcement action. The options available to you are 1) to cease operations, or 2) to make application for the proper authorization so that the FAA can be assured of the safety of your operation.



Chris Grotewohl

ACE-220 Nextgen Branch UAS
901 Locust Steet, Room 332
Kansas City, MO 64106
T 816-329-3273
F 816-329-3208

Exhibit D

ENFORCEMENT INVESTIGATIVE REPORT (Read Order 2150.3 for instructions)	Report Number 2012EA210019	Related Number
--	-------------------------------	----------------

ALLEGED VIOLATOR IDENTIFICATION

1. Name PIRKER, RAPHAEL	2. Address (Include zip code) [REDACTED] 8304 ZURICH
DBA Name Designator	
	SZ

TELEPHONE NUMBER () -	3. DATE OF BIRTH / /	4. SEX M
------------------------	----------------------	----------

5. FAA Cert. #	6. FAA Certificate Type	INDIVIDUAL
	NONE	

7. Aviation Employer

AIRCRAFT, ENGINE, PROPELLER, COMPONENT OR APPLIANCE INVOLVED

8. MAKE	9. MODEL	10. IDENT. NUMBER ACFT SN
---------	----------	------------------------------

11. Owner Name	12. Address (Include zip code)

ALLEGED VIOLATION

13. Date Occurred 2011/10/17	14. Time :	15. Date Known to FAA 2011/12/20	16. Region of Discov EA
---------------------------------	---------------	-------------------------------------	----------------------------

17. Location UNIVERSITY OF VIRGINIA Airport ID	CHARLOTTESVILLE VA	Sec Cat
--	--------------------	---------

SECTION B – STATEMENT OF CASE

EIR#2012EA210019

On October 17, 2011, Mr. Raphael Pirker conducted a number of commercial, Unmanned Aircraft System (UAS) flights around the University of Virginia (UVA) campus for the purpose of making a video of the campus and the new hospital wing (IOP#1,2) contrary to the following 14 Code of Federal Regulations (CFR):

As a result of a complaint, (IOP#3) an investigation of the flights was conducted. The flights were commercial photo flights under 14 CFR Part 91. Lewis Communications was hired by [REDACTED], marketing department for the University of Virginia (UVA) Health System, to supply aerial photographs and video of the new medical center and campus (IOP#4). Lewis Communications is a media group that specializes in product development and organizational video and films (IOP#5). Team BlackSheep was hired to perform the commercial photo flight and Mr. Raphael Pirker was paid for the flight by Lewis Communications (IOP#6,7).

The investigation revealed that several flights were made with the UAS, a Ritewing Zephyr powered glider, with a 54-inch wingspan with a camera mounted on board which sends real-time video to the pilot. The pilot wears goggles with small video displays mounted to give the pilot a "First Person Video" (FPV) of the flight as if flying on the UAS. The UAS has a range of up to 30 miles from the pilot (IOP#6). There is no record that the UAS was operated with the required aircraft registration or airworthiness certificates.

On January 24, 2012, Mr. Pirker was sent a Letter of Investigation (LOI) by email and U.S. First Class International mail (IOP#8). Mr. Pirker, who resides in Switzerland, replied that he was the pilot in command (IOP#9).

SECTION B – STATEMENT OF CASE

EIR#2012EA210019

Mr. Raphael Pirker does not hold a U.S. airman Commercial Pilot certificate to fly for hire (IOP#10). Mr. Pirker operated the UAS in a reckless manner when he flew his UAS at extremely low altitudes, down streets, under personnel bridges, directly over automobiles, and within feet of pedestrians (IOP#1). Mr. Pirker also flew directly at his assistant and nearly hitting him (IOP#1).

The FAA Policy Statement requires that no person may operate a UAS in the National Airspace System without specific authority. For UAS operating as civil aircraft the authority is special airworthiness certificates (IOP#11).

Mr. Pirker replied to the email containing the LOI on January 24, 2012. His response stated that he is under his impression that any R/C (radio controlled) aircraft with a spotter flown for recreational purpose does not fall under the UAS category. He refers to page 5 of the Federal Aviation Administration Notice of Policy for Unmanned Aircraft Operations in the National Airspace System, published in the Federal Register Docket No. FAA-2006-25714, dated February 6, 2007, to substantiate his opinion. However, Mr. Pirker opinion is incorrect and ignores the Policy Statement on page 5 and 6 which clearly excludes Mr. Pirker's civil commercial operations from the authority of Advisory Circular (AC) 91-57. The Notice of Policy was issued to clarify the FAA's current policy concerning operations of unmanned aircraft in the National Airspace System. The FAA Policy Statement requires that no person may operate a UAS in the National Airspace System without specific authority, which for public aircraft is a Certificate of Authorization (COA), for UAS operating as civil aircraft the authority is a special airworthiness certificate, and for model aircraft the authority is Advisory Circular (AC) 91-57. The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons of companies for business purposes. For UAS operating as civil aircraft the authority is special airworthiness certificates (IOP#9,11,12).

Exhibit E



The AMA History Project Presents: History of the ACADEMY OF MODEL AERONAUTICS, NATIONAL MODEL AVIATION MUSEUM & MODEL AVIATION magazine



Since 1936, 1978

Written by Museum staff (2008); Reformatted by JS (05/2010), Updated (10/2010, 04/2012)

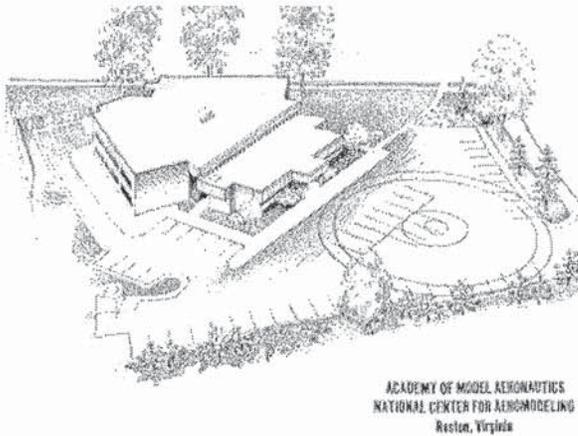
Academy of Model Aeronautics (AMA) History

Before the Academy of Model Aeronautics (AMA) came into existence, aeromodelers belonged to a variety of organizations, including the Junior Air League, the Junior Aviation League, and the Junior NAA (the aeromodeling branch of the National Aeronautic Association.) The Junior NAA, although sponsoring the first National Aeromodeling Championships (Nats) in 1923, struggled to be a true aeromodeling organization. The idea for the AMA began in 1935 (perhaps even before that) at the Nats in Detroit, Michigan. Leaders and contestants were interested in a self-governing body of aeromodeling experts, the thought being that there should be expert guidance of, for, and by model builders. Modelers wanted a single voice to develop national rules for aeromodeling contests as well as one voice to speak to the government.

First known as the American Academy of Model Aeronautics (AAMA), the organization dropped 'American' from its official title within a few years. The AMA's mailing address, at 1732 RCA Building, Rockefeller Center, New York, solidified its legitimacy in 1936. Later that year, the headquarters of the AMA moved to DuPont Circle in Washington DC as part of the National Aeronautic Association (NAA).

AMA elected officials -an Executive Committee, Advisory Board, and Council - as well as the publication *Model Aviation*, soon followed in 1937. The first issue of *Model Aviation* included a list of these newly elected officials, a two-page description of the 1936 Nationals, and 7 pages listing the eighteen events, contestants, and results.

In 1940, both the NAA and AMA moved their offices to the Willard Hotel, also in Washington DC. While in the same building, it was the first time that the AMA had separate offices from the NAA, along with its own budget and officers. However, it was not until 1966 that the AMA became fully independent from the NAA.



Reston, Virginia Headquarters location

between the AMA and the Maryland National Bank were signed and the loan was officially closed. On September 24-25, 1983, the new Reston location officially opened with over 200 people attending the ribbon cutting ceremony.

In 1979, a little over an acre of land was purchased in Reston, Virginia, just outside of Washington DC, for a new AMA Headquarters and Museum. Design architect and AMA member John Hunton drew the plans for the two-story, 3,000 square foot building. In 1980, a building fund was started, asking AMA members to aid the project, and by April 1982, donations from modelers, aeromodeling clubs, and industry donors reached the goal of \$160,000. In five days, three very important events happened: June 24 - a building permit was issued; June 27 - the official groundbreaking ceremony was held; and June 28 - the loan arrangements



Museum gallery space at the Reston, Virginia Headquarters location

Now that the AMA had a location for a museum, artifacts were needed. Although documentation states a few items were collected by the AMA starting in 1978, serious concern for acquisitions began in the 1980s. Frank Ehling, AMA's Technical Director, spent over a year acquiring donations for the Museum, and today the collection includes over 10,000 objects. These include - but are not limited to - airplanes, badges, pins, kits, parts, and apparel.

In 1988, the AMA Executive Council formed a search committee with the goal of finding properties for a new Headquarters and national flying site. The committee felt that the move would benefit all AMA clubs and the



c. 1992: AMA Headquarters and National Model Aviation Museum

community in which it would reside. The Midwest became the choice region due to location and land availability after over 50 proposals were reviewed. By the end of 1990, Muncie Indiana was the chosen location. On June 13-14, 1992, a Grand Opening was held for the new national flying site.

A year later, after moving the collection from Reston, Virginia, the Museum reopened to the public. The 25,000-square-foot Frank V. Ehling Complex not only housed the Museum, but also the Lee Renaud Memorial Library and all the AMA headquarters staff.

The move to Muncie cramped the entire AMA into one small building; space was needed. Ten years in the making, the new HQ building's groundbreaking occurred March 31, 2000. June 7-10, 2001 marked the opening of the new headquarters building for the AMA. Designed by Gooden and Ellis Architects, LLP of Muncie, this 25,000 square foot building now housed the administration, membership, publication, and special services departments.



c. 2001: AMA Headquarters building, Muncie, Indiana

Model Aviation Magazine History

In 2000, *Model Aviation (MA)* magazine celebrated 25 years of publication in its current format. The magazine existed in many different physical formats since it first appeared in 1936 as a newsletter-type publication. Distribution was originally limited to AMA leaders and subscribers until 1954, when circulation was expanded to all members.

In 1966, the AMA approached the publishers of *American Aircraft Modeler (AAM)* about the possibility of incorporating AMA news into their magazine rather than printing the small but costly *MA*. AMA members received *AAM* featuring AMA news as part of their membership beginning with the July/August 1966 issue and ending with the March 1975 issue. *AAM* went bankrupt in February of 1975, leaving the AMA with no means to communicate with its members. AMA officers realized that a magazine rather than a newsletter was more beneficial to AMA members, and thus resurrected *MA* as a magazine. To this day, AMA members continue to receive *MA* as a member benefit.

How did the publication originate? According to an article by Frank Zaic in a special 1980 reprint of the first *Model Aviation* publication (June 1936 issue):

“The publication of the MODEL AVIATION was initiated by Lt. H.W. Alden, Navy Ret. He timed the first issue so that it would be distributed at the 1936 Nationals. By doing so, the participants would know what had been done to form an organization, which would be “theirs.”

Both Issues, No. 1 and No. 2, were prepared in the 10th street loft. Lt. Alden would come on a Saturday afternoon or on an evening, sit down in front of my Underwood portable, and type out the copy. I still marvel at his ability to type out whatever he had in mind with only one try. His first copy was good for paste-up. My contribution, except for excerpts from my correspondence and magazines, was mechanical; layout, artwork, hand lettering the M.A. logo, and bringing the copy to my printer. Lt. Alden paid all the expenses: printing and postage.

Lt. Alden did not originate the MODEL AVIATION title. At one time, he mentioned that it had been used by someone else in Brooklyn, but that he obtained permission to use the title. Whatever the origin, he must have recognized it as being just what we needed. It got us away from the “model airplane” term, which tends to have a “toy” connotation.

He suggested the name “AMERICAN ACADEMY OF MODEL AERONAUTICS.” He realized that we needed a name which would not associate us with the juvenile atmosphere, which had been nurtured by the American Boy “Airplane Model League of America” and, especially, by some organizations which exploited model plane activities for self-promoting schemes. - - The name was on the long side, but it did present us in an adult and dignified manner. He also had an aura of technical and educational aspect of model aviation. Having an organization with such potential qualities, it made it possible for Lt. Alden to invite influential persons to join us. Just look at the Advisory Board list. The Board members were outstanding leaders in their field. I am sure with their help, many doors would open for us to present our cause and needs.

What happened to issue No. 3? - - It was never finished. The Academy’s future almost stopped late in 1936 when Lt. Alden could no longer sustain the momentum. He was physically and mentally drained. In part, it could have been his inability to come to terms with the NAA position. Whatever happened, we do not know the details. All we knew was that our focal point was gone as all communications were through him. (His method of working was to ask for opinions from everyone who had something to say. Then, form a consensus of suggestions and opinions, and reconcile them with his own beliefs.) Also, his personal connections and influences were lost to us.

Judging from Lt. Alden’s personality and perseverance to a cause, and the wide range of friends in aviation and elsewhere, I have no doubt that he would have helped us achieve the aims we had set forth in these two issues of MODEL AVIATION if his health had allowed him to do so. - - Luckily, by now, 1936, we were all united in the cause and were able to reestablish the communication among ourselves, and do the best we could without him. This may account why some of us seem so possessive about “our” Academy.

-Frank Zaic, 1980”

AMA Presidents

1st President	1936-1937	Willis C. Brown (Elected to serve in 1936 by Council, Elected to serve in 1937 by membership ballot)
2nd President	1938	Albert L. Lewis (Elected by membership to serve through calendar year)
3rd President	1939-1942	Edward Roberts
4th President	1943-1946	Irwin G. Ohlsson
5th President	1947-1948	Everett N. Angus
6th President	1949-1950	C.O. Wright
7th President	1951	Kenneth Hold
8th President	1952	Frank B. Bushey
9th President	1953-1956	Keith H. Storey
10th President	1957-1958	Claude McCullough
11th President	1959-1960	Dr. Walter A. Good, PhD
12th President	1961-1962	Peter J. Sotich
13th President	1963-Jan 1964	John Worth
14th President (interim)	Feb 1964-Dec 1964	Maynard Hill
15th President	1965-1966	Howard E. Johnson (Note: Two-year terms were initiated in 1965. The rule lasted through 1970.)
16th President	1967-1968	Cliff Weirick
17th President	1969-1970	John E. Patton
18th President	1971-1978	John Clemens
19th President	1979-1980	Earl Witt
20th President	1981-1986	John Grigg

21st President	1987-1995	Don Lowe
22nd President	1996-2007	Dave Brown
23rd President	2008-2011	Dave Mathewson
24th President (interim)	April 15, 2011 – December 2011	Mark Smith
25th President	2012-current	Bob Brown

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AMA History Project
National Model Aviation Museum
5151 E. Memorial Dr.
Muncie IN 47302
(765) 287-1256, ext. 511
historyproject@modelaircraft.org



Exhibit F

CEN10LA487

On August 14, 2010, approximately 1100 mountain daylight time, N28KT, a Shpakow SA 750 bi-plane, was substantially damaged when it collided with a radio controlled AJ Slick airplane, while performing a go-around at the Van-Aire Estates Airport (CO12), Brighton, Colorado. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. The pilot and his passenger were not injured. The flight departed Centennial Airport (KAPA), Denver, Colorado, approximately 1030, and was destined for Brighton, Colorado.

According to a telephone conversation and subsequent written statement submitted by the pilot of the bi-plane, he was flying to CO12 to participate in a fly-in and BBQ event. Prior to his flight, he had contacted the event organizer, coordinated his arrival, and received a briefing that there would be radio controlled airplane models flying between 1000 and 1400. While on approach to runway 12, he observed a Cessna airplane on the runway and performed a go-around. During his second approach to runway 12, he felt that his approach speed was fast, and the airplane was not aligned properly so he added power, turned his smoke on to increase visibility to the radio controlled airplane operators, and announced that he was performing a go-around.

While performing the go-around, the radio controlled airplane impacted the lower left wing of the bi-plane. The pilot of the bi-plane reported that he lost altitude but was able to recover and land the bi-plane without further incident. He stated that he did not see the radio controlled airplane until just prior to the impact.

The Federal Aviation Administration (FAA) inspector who examined the bi-plane reported that lower left wing was crushed aft to the main spar. A six to eight inch tear was noted in the upper left wing fabric, and damage was noted on the leading edge of the left aileron.

According to a telephone conversation and subsequent written statement submitted by the pilot of the radio controlled airplane, he had been cleared by the "air boss" to exhibit his airplane in flight. He understood that the event coordinator (air boss) was providing see and avoid assistance and communicating with airplanes flying in and out of the airport. The pilot of the radio controlled airplane reported that during his routine, the bi-plane came from out of nowhere and "slammed" into his radio controlled airplane. He reported that his airplane was destroyed.

During the event, a video was made of the radio controlled airplane performance. The video captured the events prior to the collision, as well as the collision between the radio controlled airplane and the bi-plane. The beginning of the video showed the radio controlled airplane being operated directly over the runway environment with the operator on the runway, very close to the airplane. The airplane was in a nose high, tail low attitude, "hanging" on the propeller. Approximately 35 seconds into the video, a second individual carrying a hand-held radio is seen walking towards the radio controlled airplane operator. Due to the engine noise, their conversation could not be heard. At this time, the radio controlled airplane recovered from the maneuver and climbed in altitude. The next frame showed the accident bi-plane flying from the left side of the screen to the right side of the screen. At 38 seconds into the video, the radio controlled airplane collided with the bi-plane.

In an interview with the event coordinator, he clarified that the title of airboss was not a formal position. He did provide a safety briefing with the radio controlled airplane operators the morning of the event. In this briefing he emphasized that only one aircraft was to fly at a time, they were to fly on

the east side of the runway, not over the runway, and no one was to fly without first speaking to him. He carried a radio with him to monitor traffic.

The event coordinator stated that prior to the accident, the radio controlled airplane operator departed after waiting for a Cessna to land. Shortly thereafter the bi-plane reported that he was intending to land and the event coordinator asked him to report 3 miles out. The radio controlled airplane flew away from the airport towards the east. When the bi-plane reported that he was on final, the event coordinator became aware that the radio controlled airplane was over the runway performing stunts and hovers. When the bi-plane announced his go-around, the event coordinator realized that the radio controlled airplane was in the bi-planes flight path and told the radio controlled airplane operator to "dump it." The radio controlled airplane continued to hover for a few seconds and then initiated an escape maneuver which placed the radio controlled airplane in the bi-plane's flight path. The event coordinator maintained that he was not acting in the capacity of a spotter.

The club president reported that this was not an Academy of Model Aeronautics (AMA) sanctioned event; however, AMA rules applied. He had understood that the individual creating the video was also the spotter; however, he was not sure if a spotter had been formally or officially assigned.

The AMA Safety Code stated that model aircraft pilots should yield right of way to all man carrying aircraft, see and avoid all aircraft, and utilize a spotter when appropriate. In a follow-up conversation with a representative with the AMA, it is left up to the operator to use a spotter, and there is not currently any guidance for spotter briefings, or spotter responsibilities. The "See and Avoid Guidance" on the AMA websites stated that the spotter should understand their duties and expectations, and should be used when operation is expected within the proximity of manned aircraft. The AMA does not advise concurrent operations.

The Federal Aviation Administration Advisory Circular (AC) 91-57, Model Aircraft Operating Standards, stated that operators should give right of way to, and avoid flying in the proximity of, full-scale aircraft. The AC also encourages operators to use observers to help.

Use your browsers 'back' function to return to synopsis
[Return to Query Page](#)

Exhibit G

NTSB Identification: **CEN10LA487**
14 CFR Part 91: General Aviation
Accident occurred Saturday, August 14, 2010 in Brighton, CO
Probable Cause Approval Date: 05/19/2011
Aircraft: SHPAKOW THOMAS SA 750, registration: N28KT
Injuries: 2 Uninjured.

NTSB investigators may not have traveled in support of this investigation and used data provided by various sources to prepare this aircraft accident report.

During a local fly-in event, a radio controlled airplane collided with a bi-plane while the bi-plane was performing a go-around. The radio controlled airplane was performing a hover maneuver just prior to the collision and initiated an escape maneuver which placed the radio controlled airplane right into the flight path of the bi-plane. The bi-plane sustained substantial damage, but was able to land without further incident. The radio controlled airplane was destroyed. Prior to the event, the event coordinator briefed the participants that they were to operate their radio controlled airplanes to the east of the runway, and not directly in the runway environment. While the event coordinator was monitoring the radio for traffic, it was not clearly communicated who, if anyone, was providing spotter duties for the radio controlled airplane operator prior to the collision.

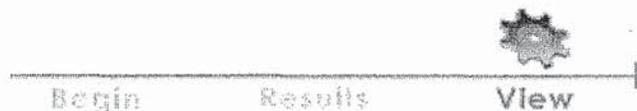
The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The radio-controlled airplane operator's decision to maneuver his airplane outside of the designated operating area, resulting in a collision with a bi-plane. Contributing to the accident was the lack of a formally designated spotter.

[Full narrative available](#)

[Index for Aug2010](#) | [Index of months](#)

Exhibit H



[Back to Results Page](#)

[Filter F](#)

View Printable Results: [MS Word](#) | [HTML](#) | [HTML without Page Breaks](#)

ACN: 326359 (1 of 1)

Time / Day

Date : 199601
Local Time Of Day : 0601-1200

Place

Locale Reference.Airport : PAO
State Reference : CA
Relative Position.Distance.Nautical Miles : 6
Altitude.AGL.Single Value : 600

Environment

Flight Conditions : VMC
Light : Daylight

Aircraft : 1

Aircraft Operator : Air Taxi
Make Model Name : Helicopter
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 135
Flight Plan : None
Mission : Passenger
Flight Phase : Cruise
Flight Phase : Cruise
Route In Use : Direct
Airspace.Class G : OAK

Aircraft : 2

Make Model Name : Any Unknown or Unlisted Aircraft Manufacturer
Operating Under FAR Part.Other

Person

Reference : 1
Reporter Organization : Air Taxi
Function.Flight Crew : Pilot Flying
Function.Flight Crew : Single Pilot
Qualification.Flight Crew : Commercial
ASRS Report Number.Accession Number : 326359

Analyst Callback : Completed

Events

Anomaly.Conflict : NMAC
Detector.Person : Flight Crew
Miss Distance.Horizontal : 100
Miss Distance.Vertical : 0
Result.Flight Crew : Took Evasive Action

Narrative: 1

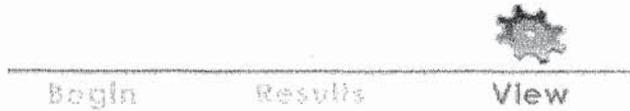
I RECENTLY HAD A 'CLOSE ENCOUNTER' WITH A RADIO-CTLED MODEL AIRPLANE JUST OUTSIDE CLASS D AIRSPACE. I'D LEFT PALO ALTO ON A N-EASTERLY HEADING TO TAKE SOME CLIENTS TO IN NEWARK, MAINTAINING 600 FT AGL TO STAY BELOW INBOUND FIXED-WING TFC ARRIVING FROM SW OF THE 'SALT PILE' IN NEWARK I OBSERVED A BRIGHT RED OBJECT PASS IN FRONT OF MY ACFT AT A HIGH RATE OF SPD. THE OBJECT WAS VISIBLE FOR ONLY A FEW SECONDS AND I'D ESTIMATE IT WAS 100 FT OF MY ACFT. I'D ENTERED A TIGHT LEFT TURN UPON FIRST SIGHTING THE OBJECT AND AS I NOTICED A RED COLORED MODEL AIRPLANE DESCENDING TOWARD THE GND BELOW AND THE MODEL AIRPLANE CONTINUED ITS DESCENT TOWARD A GREEN-COLORED RECTANGLE ON THE GND. I BELIEVE THE GREEN-COLORED RECTANGLE IS A MODEL ACFT 'ARPT' AND IS USED BY LOCAL ENTHUSIASTS ON 'SALT PILES' AND THE MODEL AIRPLANE OPERATING AREA ARE LESS THAN A HALF MI FROM PALO ALTO. I USED CAUTION WHEN REPORTING THE 'SALT PILE' PRIOR TO ENTERING PALO ALTO'S CLASS D AIRSPACE. A CONVERSATION WITH REPORTER REVEALED THE FOLLOWING INFO: REPORTER STATED HE WAS FLYING A MODEL AIRPLANE AND WAS TAKEN AFTER THE FACT. REPORTER WAS INFORMED THERE ARE NO FARSES COVERING MODEL AIRPLANE

Synopsis

HELI HAD NMAC WITH RADIO CTLED MODEL ACFT.



Exhibit I



[Back to Results Page](#)

[Filter F](#)

View Printable Results: [MS Word](#) | [HTML](#) | [HTML without Page Breaks](#)

ACN: 411378 (1 of 1)

Time / Day

Date : 199808
Local Time Of Day : 1801-2400

Place

Locale Reference.Airport : 7G0
State Reference : NY
Relative Position.Angle.Radial : 75
Relative Position.Distance.Nautical Miles : 1
Altitude.AGL.Single Value : 500

Environment

Flight Conditions : VMC
Weather Elements / Visibility.Visibility : 5
Light : Daylight
Ceiling.Single Value : 4200

Aircraft : 1

Aircraft Operator : Personal
Make Model Name : Skyhawk 172/Cutlass 172
Crew Size.Number Of Crew : 1
Operating Under FAR Part : Part 91
Flight Plan : None
Mission : Training
Flight Phase : Climb
Flight Phase.Other
Airspace.Class G : 7G0

Aircraft : 2

Aircraft Operator.Other
Make Model Name : Other
Flight Plan : None
Flight Phase : Cruise
Flight Phase.Other

Person : 1

Reference : 1

Reporter Organization.Other
Function.Flight Crew : Instructor
Function.Flight Crew : Pilot Flying
Qualification.Flight Crew : Commercial
Qualification.Flight Crew : Flight Instructor
Qualification.Flight Crew : Instrument
Experience.Flight Crew.Total : 3457
Experience.Flight Crew.Last 90 Days : 47
Experience.Flight Crew.Type : 2901
ASRS Report Number.Accession Number : 411378
Analyst Callback : Completed

Person : 2

Reference : 2
Reporter Organization.Other
Function.Flight Crew : Pilot Flying

Events

Anomaly.Conflict : NMAC
Anomaly.Other
Detector.Person : Flight Crew
Miss Distance.Horizontal : 150
Miss Distance.Vertical : 0
Result.General : None Reported / Taken

Assessments

Contributing Factors / Situations : Procedure

Narrative: 1

RC MODEL ACFT OBSERVED SEVERAL TIMES BTWN 500-700 FT AGL WHILE ON XWIND LEG. MOI OBSERVED LESS THAN 200 FT HORIZ, CLBING AND DSNDING THROUGH OUR ALT WHILE ON XV SPOKE WITH RC MODEL CLUB PRESIDENT WHO SAID THE CEILING OF THEIR OPS IS TYPICALLY THEY CANNOT ACCURATELY JUDGE ALT. THIS TYPE OF OP IS A HAZARD FOR VFR RWY 10 PATTE CALLBACK CONVERSATION WITH RPTR REVEALED THE FOLLOWING INFO: RPTR STATES THAT H MGR WHO INDICATES THAT THE ARPT IS A PVTLY OWNED PUBLIC USE ARPT. THEY FEEL CAUGH COMMUNITY OPINION SHOULD THEY DISCOURAGE ONE ASPECT OF ACTIVITY OPPOSED BY ANO AIRPLANE CLUB HAS BEEN OPERATING FOR 25 YRS. THE PROB IS THAT NEWER MODEL AIRPLAN FASTER THAN THEY USED TO. ONE MODELER INDICATES HE CAN BE AT 3000 FT WITHIN MINS (MOUNTED FIELD GLASSES TO FOLLOW HIS ACFT. THE MODELERS CANNOT ACCURATELY DETER PARAMETERS WITHIN WHICH THEY CTL THE LATERAL BOUNDS BUT EVEN THAT IS NOT ALWAYS TO THE FSDO AND THE RESPONSE IS THAT THE FARS DO NOT ADDRESS THIS AREA OF CONCEI CONTACTED THE EASTERN REGION AND WAS INFORMED THAT THERE WAS A SIMILAR SIT AT T FAR 77 REGARDING TERPS PROTECTION ASPECTS. RPTR FEELS THIS MAY BE USABLE FOR THIS TEB SIT WAS RESOLVED BY AGREEING THAT THE RADIO CTLED ACFT COULD NOT OPERATE ABC NEARBY BUILDINGS. THE FIELD FOR THE MODELERS IS ON PARKS PROPERTY BUT CLOSE TO TH GPS APCH, IF ONE NEEDS TO CIRCLE TO LAND, THE PATH IS DIRECTLY OVER THE MODELER'S F TIME BOMB WAITING TO HAPPEN.

Synopsis

INSTRUCTOR PLT OF C172 IN THE TFC PATTERN HAS NMAC WITH RADIO CTLED MODEL ACFT A'

Exhibit J

1
 AUG 20 2001



U.S. Department
 of Transportation
 Federal Aviation
 Administration

Memorandum

Dallas-Fort Worth Tower/TRACON
 Post Office Box 610368
 DFW Airport, Texas 75261-0368

Subject: ACTION: Request For
 Ruling/Interpretation/Establishment Of
 Procedures For Radio Controlled Blimps
 in Class B Airspace

Date: August 20, 2001

From: Air Traffic Manager, Dallas-Fort Worth
 Tower/TRACON, DFW-500

Reply
 to
 ATIS
 01

To: Manager, Operations Branch, ASW-930

We are requesting assistance in developing procedures or at the very least parameters to govern the flight of radio controlled blimps and aircraft within Class B. An organization called Galaxy BVF is requesting permission to operate in DFW Class B Airspace.

The intent of the operators is to use these vehicles for advertising, aerial photography, etc. On occasion they will be working with Texas Aerographic, a business that is currently under a letter of agreement with DFW TRACON.

These vehicles are very unusual:

a. Blimp Specifications:

Length - 22 feet (in the process of procuring a 30" and 50" airship)
 Maximum Diameter - 5 feet.
 Power Plants - 2, G-22 gas engines with electric starters.
 Maximum Height - 500 to 1000' AGL. (operator didn't state-but feel a higher altitude is attainable)
 Range From Remote Pilot - 2 miles

b. Safety Features:

Adjustable helium release valve
 Emergency engine cutoff

c. Optional Features:

- Transponder
- Emergency Locator Transmitter
- Hand held radio for communications with ATC

Should the gondola separate from the blimp, a safety line will trigger helium release and the ship will descend.

Additionally, Galaxy RPV has a 14' fixed wing aircraft that they will be using too. At this point we have no information on this vehicle or what its intended use will be.

It is important that we establish guidelines for the operation of these vehicles should they be permitted to operate in Class E. According to our information, they do have two way radio communications (although not on the vehicle), transponder, and safety procedures/equipment needed to operate in Class E. Galaxy is open to developing helium release valves for emergency descents should ATC require a quick descent, etc. (We will forward pictures via email).

Our concern is that before a precedent is set and allow them to operate as requested, we believe requirements should be established for their operation. According to Mr. White of Galaxy RPV, there are on-going meetings with Flight Standards to establish FAR requirements, etc. for the operation of these vehicles. Discussions with FBO provided little guidance at this point. We do realize we can say no to their operation at least for the moment, but would appreciate your counsel for the future.

If you have questions or need additional information, please contact Chuck Frankenfield, ext. 2510, or Larry Allen ext. 2532.

C. Ross Schulke



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

Subject: ACTION: Request for Ruling, Interpretation,
or Procedures for Radio-Controlled Blimps in
Class B Airspace

Date: AUG 28 2001

From: Manager, Air Traffic Division, ASW-500

Reply to:
ATTN: ac

To: Manager, Terminal Procedures Branch, ATP-120
ATTN: Marty Walker

We request a ruling, interpretation, or procedures for radio controlled blimps to operate in Class B Airspace. The Air Traffic Division, Operations Branch, ASW-500, and Dallas-Fort Worth (DFW) Tower/TRACON, have been contacted by an organization called Galaxy RFP to fly radio-controlled blimps in Class B Airspace. Please refer to the attached cc:Mail (attachment 1), and the memorandum, from the Manager, DFW Tower/TRACON, (attachment 2) for detailed information about the request and pictures of the blimp.

It appears that the blimps, described and pictured in the attachments are airships, as defined in 14 CFR 1.1, General Definitions, which are also aircraft, as defined in the same CFR. If this is correct then the rules governing their operations in Class B Airspace are contained within 14 CFR 91.131, Operations in Class B Airspace, and 14 CFR 91.215, ATC Transponders and Altitude Reporting Equipment and Use. They also must meet the requirements contained within these 14 CFR paragraphs as well as given the same consideration as any other airship that requests to operate in Class B Airspace.

We would appreciate it if you could validate this. However, if this is not valid, please provide us with direction, procedures, and/or regulations as to how to address requests for this type of radio controlled blimp to operate in Class B Airspace. If you have any questions, please contact Walter Tweedy, Operations Specialist, ASW-510.1, at 817-232-3560.

ORIGINAL SIGNED BY
A. VISELLI

Douglas R. Murphy

3 Attachments

cc:
Chuck Brackenfield, DFW Tower/TRACON

ASW-510.1, WTweedy, 85660, 08/28/01, (DFWASWP2.DOC), P, 0010-3

Exhibit K



U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

ORIG: _____
DATE: _____

Subject: INFORMATION: Interpretation of Procedures
for Radio Controlled Airships in Class B Airspace.
Your Memo of 8/28/01

Date: NOV 2 2001

From: Program Director for Air Traffic
Planning and Procedures, ATP-1

Reply to
Attn: cll

To: Manager, Air Traffic Division,
ASW-500

We have reviewed your above-referenced request for interpretation regarding requirements for radio controlled airships and aircraft to operate in Class B airspace, and offer the following response.

The aircraft described and pictured in the attachments to your memorandum appear to be model aircraft that do not require compliance with Federal Aviation Regulations. Model aircraft do not require a type certificate, airworthiness certificate, or registration. Federal Aviation regulations do not apply to them. Specifically, 14 Code of Federal Regulations (CFR) Part 21, Certification Procedures for Products and Parts; 14 CFR Part 43, Maintenance, Preventive Maintenance, Rebuilding and Alteration; and 14 CFR Part 91, General Operating and Flight Rules, do not apply to model aircraft. Model aircraft may operate in controlled airspace without air traffic control authorization, transponders, or altitude reporting equipment.

Model aircraft operators should comply with Advisory Circular 91-57, Model Aircraft Operating Standards, and avoid flying within 3 miles of an airport or in proximity of full-scale aircraft. Model aircraft that pose a hazard to full-scale aircraft, persons, or property should be reported to local law enforcement officials.

If you have any questions, please contact Martin Walker, ATP-120.8, at (202) 267-9530.

Michael A. Cirillo

Exhibit L



U.S. Department
of Transportation
Federal Aviation
Administration

Dallas-Ft. Worth ARTIS/TRACON
P. O. Box 610348
Dallas-Ft. Worth Airport, TX 75261
Telephone: 972-615-2300

May 4, 2004

Mr. Tony White
Owner, Galaxy RPV
6024C Old Hemphill Road
Fort Worth, TX 76134

Dear Mr. White:

At your request we are providing guidance detailing requirements and coordination responsibilities prior to operating an RPV in Class B Airspace. Advisory Circular (AC) 91-57, Model Aircraft Operating Standards, covers Remote Piloted Vehicle (RPV) operations. A copy of 91-57 is attached. Additionally, we have attached our 2001 correspondence with the Program Director for Air Traffic regarding your operation. Also, there are other pieces of coordination to be accomplished in airspace other than Class B. This list may not be all inclusive; however it will provide you with a starting base line. Coordination is required with:

- a. Any operating Airport Traffic Control Tower (ATCT) in Class D Airspace.
- b. Any operating ATCT without Class D when operation will be conducted within 4 NM of the affected airport.
- c. Any airport owner/operator at airports without an ATCT.
- d. DLO TRACON before operating in Class B airspace.
- e. Owner/operator/proponent of event at which flight is proposed.

Remain clear of all Temporary Flight Restriction (TFR) areas. Locations and information regarding waiver applications in accordance with Section 352 of Public Law 108-7 can be obtained by calling 571-227-1322, or from the FAA website at <http://www.faa.gov/ats/ats/waiver>. Coordination is also required with owner/operator/proponent of event protected by a TFR.

The following information will be required by ATIS during the coordination process:

Date
Location
Altitude
Duration of flight
Start/stop times

Attached is a copy of the sporting event TER. If you have questions or need additional information, contact Chuck Frankenfield at 972-615-2530, or Roger Pieratt at 972-615-2538.

JCasilio
JoEllen Casilio, Manager
Dallas-Ft. Worth ATIS/TRACON

Attachments

Exhibit M



U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., SW.
Washington, DC 20591

OCT 30 2009

The Honorable Doris O. Matsui
House of Representatives
Washington, DC 20515

Dear Congresswoman Matsui:

Thank you for your September 18 letter on behalf of Mr. Patrick Egan of the Remote Control Aerial Photography Association about rules effecting radio controlled (RC) and unmanned aircraft systems (UAS).

Mr. Egan has previously expressed his concerns on this subject directly with the Federal Aviation Administration (FAA) Unmanned Aircraft Program Office (UAPO). Additionally, as a member of the Small UAS Aviation Rulemaking Committee (ARC), he actively participated in developing recommendations for the FAA to consider as part of the current rulemaking effort, which is specifically focused on enabling the type of operations he represents. We recognize that Mr. Egan continues to have concerns, including those raised in his letter to you.

Mr. Egan's letter addresses the following general questions: Applicability of current regulations to RC and UAS operations and the aviation Safety Management System process used by the FAA to assess risks and develop safe mitigations.

In order to operate in the National Airspace System (NAS), current laws and regulations require all aircraft to be registered and airworthy. There are various types of airworthiness certification, each balancing operational needs with safety. Currently, all civil unmanned aircraft (UA) are only eligible to apply for and obtain special airworthiness certificates, experimental category, which specifically support the safe development of new or immature technology that has yet to pass successfully the rigors of higher levels of assessment. For reasons of safety, operations conducted under this certificate are limited to research and development, crew training, and product demonstration.

Recognizing that the traditional processes for safely integrating new technology may seem overly restrictive to the "small" UA community, the FAA initiated a rulemaking action focused on providing limited access to the NAS for these operations. As part of this rulemaking effort, the FAA created the Small UAS ARC to garner advice and recommendations from the affected community. Representatives were invited from across the community based on their experience in developing this new technology and past involvement with the FAA in integrating UASs into the NAS and included the Department of Defense, manufacturers (small, medium, and large), user associations, etc. Consideration was given to those familiar with traditional aviation processes, experienced in developing and operating small UASs under

FAA approval, or representative of a unique portion of the affected community, to which the later Mr. Egan's membership served. Input from this group resulted in the FAA's assessing its position on small UAs.

In 2004, the FAA began reevaluating its previous RC and UAS policies in response to the increasing number of operations and technical capabilities of these systems. Prior to this, most of these activities were recreational in nature and conducted in remote locations, while commercial activities were few in number and relatively obscure. Although earlier policies sufficiently addressed safety concerns through voluntary compliance with safety minimums, the FAA determined a more stringent regulatory approach was necessary.

In 2005, the FAA addressed the developing safety concerns by providing internal guidance to FAA personnel regarding the assessment of future operations. In early 2007, the FAA published formal policy on UAS and RC modeling outlining the issues and rationale, as well as general safety parameters and procedures for continued operations. We have enclosed a copy for your information. These policies and procedures are consistent with broader aviation regulations in requiring nonrecreational activities to comply with higher standards. As such, nonrecreational UASs must obtain appropriate airworthiness certification.

The specific responses to Mr. Egan's eight questions are enclosed.

If you or a member of your staff needs further assistance, please contact Roderick D. Hall, Assistant Administrator for Government and Industry Affairs, at (202) 267-3277.

Sincerely,



for John M. Allen
Director, Flight Standards Service

Enclosures
Transmitted Correspondence

Exhibit N

DOT/FAA/AR-09/7

Air Traffic Organization
NextGen & Operations Planning
Office of Research and
Technology Development
Washington, DC 20591

Unmanned Aircraft System Regulation Review

September 2009

Final Report

This document is available to the U.S. public
through the National Technical Information
Service (NTIS), Springfield, Virginia 22161.



U.S. Department of Transportation
Federal Aviation Administration

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7. Author(s) L. Kirk, D. Marshall, B. Trapnell, and G. Frushour				8. Performing Organization Report No.	
9. Performing Organization Name and Address Center for General Aviation Research Embry Riddle Aeronautical University 600 S. Clyde Morris Blvd. Daytona Beach, FL 32114-3900				10. Work Unit No. (TRAIS)	
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15. Supplementary Notes This study was completed in March 2007. On February 6, 2007, the Federal Aviation Administration (FAA) issued a notice in the Federal Register clarifying that an unmanned aircraft system falls in the definition of aircraft. Also, on March 13, 2008, the FAA issued Interim Operational Approval Guidance 08-01 to replace Policy Memorandum 05-01, which is referenced in this report.					
16. Abstract A top-level review on the applicability of Title 14 Code of Federal Regulation (CFR) to unmanned aircraft systems (UAS) operating in the National Airspace System (NAS) was conducted under this research effort. The goal of this review was to systematically examine the relevant federal regulations, statutes, orders, and policies to identify the known issues resulting from the rapid growth of UAS technology. The review went through sections of 14 CFR to assess their applicability to UAS operating in the NAS based on their face values, i.e. not the intent of the rule, rather a direct understanding of the text. The review results were categorized into four levels: Clearly Apply, May Apply by Interpretation, Does not Apply, and Could Apply With Revision. Reviews of other relevant documents, including the Federal Aviation Administration Advisory Circulars, Technical Standard Orders, and Airman Information Manual, were also evaluated. Some of the documents were examined more closely.					
17. Key Words Unmanned aircraft system, Regulatory review				18. Distribution Statement This document is available to the U.S. public through the National Technical Information Service (NTIS), Springfield, Virginia 22161.	
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LIST OF ACRONYMS

AC	Advisory Circular
AFS	Flight Standards Service
AIM	Aeronautical Information Manual
CAB	Civil Aeronautics Board
CFR	Code of Federal Regulations
CGAR	Center of Excellence for General Aviation Research
COA	Certificate of Waiver of Authorization
FAA	Federal Aviation Administration
FR	Federal Register
MASPS	Minimum Aviation System Performance Standard
NAS	National Airspace System
RTCA	Radio Technical Commission for Aeronautics
SAA	See and avoid
SC	Special Committee
TSO	Technical Standard Order
UA	Unmanned aircraft
UAS	Unmanned aircraft system
UAV	Unmanned aerial vehicle
USC	United States Code

EXECUTIVE SUMMARY

A top-level review on the applicability of Title 14 Code of Federal Regulation (CFR) to unmanned aircraft systems (UAS) operating in the National Airspace System (NAS) was conducted under this research effort. The goal of this review was to systematically examine the relevant federal regulations, statutes, orders, and policies to identify the known issues resulting from the rapid growth of UAS technology. These issues include, but are not limited to, communication, control and relay stations; pilot-operator training and certification; “detect, sense and avoid” requirements; “see and avoid” regulations; manufacturing standards and certification; integration into the NAS; and international standards and operating environments.

The review examined sections of 14 CFR to assess their applicability to UAS operating in the NAS based on their face values, i.e., not the intent of the rule, rather a direct understanding of the text. The review results were categorized into four levels: Clearly Applies, May Apply by Interpretation, Does not Apply, and Could Apply With Revision.

The review found that 30% of 14 CFR sections were categorized as Clearly Applies to UAS operations, 16% of them were categorized as Does not Apply. The remaining 54% might be considered in the other two May or Could categories, particularly since a UAS is not explicitly defined in the 14 CFR.

Due to the limitation of available resources, reviews of other relevant documents, including the Federal Aviation Administration (FAA) Advisory Circulars, Technical Standard Orders, and Airman Information Manual, were also evaluated. Some of the documents were examined more closely. In the total review, 33% clearly applied and 12% did not apply. The remaining 55% may have potential to apply, dependent upon the regulatory definition of a UAS.

The FAA Flight Standards Service (AFS)-400 UAS Policy 05-01, while not a regulatory document, provides a definition for an unmanned aircraft (UA). It does not, however, clearly distinguish between a UA and a model aircraft. The latter, having a long history of self-regulation, fell outside the FAA’s area of interest.

A Policy Statement issued February 13, 2007, cited at 72 Federal Register 6689, “Unmanned Aircraft Operations in the National Airspace System,” is intended to be a clarification of the FAA’s current policy regarding operations of UA in the NAS. The policy states, in part:

“The current FAA policy for UAS operations is that no person may operate a UAS in the National Airspace System without specific authority. For UAS operating as public aircraft the authority is the COA, for UAS operating as civil aircraft the authority is special airworthiness certificates, and for model aircraft the authority is AC 91-57.

The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes.

The FAA has undertaken a safety review that will examine the feasibility of creating a different category of unmanned “vehicles” that may be defined by the operator’s visual line of sight and are also small and slow enough to adequately mitigate hazards to other aircraft and persons on the ground. The end product of this analysis may be a new flight authorization instrument similar to AC 91-57, but focused on operations which do not qualify as sport and recreation, but also may not require a certificate of airworthiness. They will, however, require compliance with applicable FAA regulations and guidance developed for this category.”

The comment period for this Policy Statement commenced February 13, 2007, and was not limited by the text of the document.

The author’s recommendation is to consider the development of UA and their related systems against which current regulations may be applied or revised, and against which new regulations may be developed to provide for a safe integration of UAS operations into the NAS.

1. INTRODUCTION.

An unmanned aircraft system (UAS) regulatory review was undertaken by the Center of Excellence for General Aviation Research (CGAR) for the Federal Aviation Administration (FAA).

1.1 OBJECTIVES.

FAA Order 8040.4 specifies that “the FAA shall use a formal, disciplined, and documented decision-making process to address safety risks in relation to high-consequence decisions...” (See appendix A.) The introduction of UAS into the National Airspace System (NAS) represents the incorporation of new vehicles and, potentially, new classes of aircraft, which present a certain level of risk to the current NAS stakeholders. The objective of this study was to provide a systematic regulatory review to identify top-level gaps in existing regulations to facilitate the requirements of the FAA’s decision- and rulemaking processes.

1.2 BACKGROUND.

The history of unmanned aerial vehicles is well documented in *Unmanned Aviation: A Brief History of Unmanned Aviation* by L. R. Newcomb. The recent expansion of the use of unmanned aircraft (UA) and UAS by the United States military and the application of UAS in the civil sector generated discussion about issues associated with the incorporation of UAS into the NAS. The question remains, however, as to whether the current regulatory structure can be applied directly to UA and their operating systems. For instance, the micro UAS may be powered by electric motors. In this instance, questions arise as to whether the current regulations that apply to aircraft powerplants apply equally to such UAS. Additionally, do regulations applying to aircrew relate to the pilots of UAS?

When examining the current regulations, it seemed obvious that specific parts or subparts would not apply to UAS, such as those requiring a certain number of flight attendants onboard a particular aircraft. However, there remains the vast majority that might apply, depending upon any number of variables or interpretations.

Most importantly, do the applicable regulations provide for an equivalent level of safety to that of manned aircraft, or will new or revised regulations be required to fill gaps identified through a comprehensive regulation study?

The goal of this UAS regulation review was to systematically examine the relevant federal regulations, statutes, orders, and policies to identify the known issues resulting from the rapid growth of UAS technology, including, but not limited to, communication; control and relay stations; pilot-operator training and certification; “detect, sense and avoid” requirements; “see and avoid” (SAA) regulations; manufacturing standards and certification; integration into the NAS; and international standards and operating environments.

1.3 INVESTIGATIVE TEAM.

The CGAR team consisted of representatives from the University of Alaska Anchorage and the University of North Dakota.

2. REGULATORY REVIEW AND EVALUATION APPROACH.

The CGAR team conducted a comprehensive literature search to examine the known issues resulting from the rapid growth of UAS technology and the attempts by the FAA to respond with the mandated level of oversight required by federal law. These issues include:

- Communications
- Control and relay stations
- Detect, sense and avoid requirements
- SAA regulations
- Pilot-operator training, qualification, and certification
- Manufacturing standards and certification
- Operating standards and integration into the NAS
- Regulatory compliance and enforcement
- Access to the NAS for uncertified or unregulated military systems
- Needs and demands of the Defense and National Security agencies
- International standards and operating environments

The top-level review began with examination of a significant volume of academic papers, scientific journals, technical publications, government reports, government agency technical documents, industry technical publications, presentations and conferences, and industry sources. (See appendix A.)

The primary source for this study was the Code of Federal Regulations (CFR), from which any potential user of the NAS must derive its authority or permission to operate a UA or unmanned rotorcraft. To assist in identifying and analyzing applicable regulations, a spreadsheet matrix was created, wherein all current CFRs, Advisory Circulars (AC), Orders, Policy Statements, Technical Standard Orders (TSO) and other relevant and legally binding documents are preliminarily categorized as Clearly Applies, May Apply by Interpretation, Does not Apply, and Could Apply With Revision. The categorization of a particular regulation is subject to further interpretation, depending upon the opinion of the reader.

- Clearly Applies:
 - A regulation, order, or TSO that was specifically directed toward UAS
 - Has such a broad application that all aircraft, regardless of size or character, would be included
 - Pertains to general procedures for obtaining certification or other FAA requirements

- May Apply by Interpretation:
 - A little vague from a legal perspective
 - Anticipates arguments on both sides of an issue, but acknowledges ambiguities
- Does not Apply:
 - Regulations in which there could be no conceivable interpretation that would include a UAS (For example, regulations prescribing the minimum number of flight attendants on a passenger aircraft)
- Could Apply With Revision:
 - A regulation that would readily lend itself to application with a minor revision or addition of supplemental language (For example, 14 CFR Part 9.1001-1443, which created a new category for fractional ownership operations)

The CGAR team members also gathered information as a result of their memberships in other organizations and their participation in other studies concerning UAS issues. (See appendix A.)

3. RESULTS AND DISCUSSION.

3.1 HISTORICAL PERSPECTIVE.

The team's research began at the earliest recorded federal aviation regulations, spanning the period from the enactment of the Air Commerce Act of 1926 to the present. Beginning with the definitions and the underlying intent of the regulations, the first question was, Were the earliest regulations intended to protect people and property on the ground or to ensure the safety of the occupants of aircraft? This is a simple question without a clear answer. The best reference for the intent of a regulation is its history, as reflected in legislative debate or committee hearings, notes kept by the proponents and opponents, recorded testimony, public comment, and so on. The Administrative Procedures Act became the law in 1944. This Act established formal procedures that must be followed by all federal agencies in promulgating and enforcing regulations, including a rulemaking process, adjudication procedures, and opportunities for public comment and debate. These procedures were designed to promote the charter of the agency and ensure that those affected by the agency's business are afforded due process and a nonarbitrary application of rule and procedure. The Attorney General's Report on the Administrative Procedures Act, prepared in 1941 by Robert H. Jackson (later appointed to the United States Supreme Court), discusses the Civil Aeronautics Board (CAB) and its safety and regulatory function; however, it offers little enlightenment about the overall intent of the Air Commerce Act and the regulations established by the CAB.

One valuable source was the Federal Register (FR), which offered some guidance on the intent behind some regulations, such as 91.111 and 91.113, regarding the right-of-way rules. Unfortunately, not all new rules or rule changes are thoroughly treated in the FR, specifically with reference to intent and history. Notices of Proposed Rulemaking contain proposed rules, the reasons for them, and comments representing the opinions or suggestions of interested

parties, some of which may appear in the final rule. A more thorough regulation study, which has not been done with regard to UAS, would include review of all such historical documents. However, a regulation study was done on a limited basis with respect to certain terms or regulations pertaining to right-of-way rules, see-and-avoid requirements, visibility rules, and careless and reckless operation prohibitions.

The FAA archives could also serve as a potential source of useful information for determining the fundamental intent of aviation regulations. The archives contain materials and documents that might explain the intent of many of the regulations that the team determined to be clearly applicable to UAS or amenable to application through interpretation or amendment. For example, opinion papers or letters of interpretation from FAA branch or division managers in the Chief Counsel's office, directed to individuals and entities asking for interpretations of particular regulations, might prove to be of considerable value when making applicability determinations. Such letters, however, are rarely published and were not available for this review. To ensure the accuracy and thoroughness of future work, the team would need to examine these documents, and others, so they could inform the reader what the agency intended when a particular regulation was written or vetted through the rulemaking process.

3.2 TITLE 14 CODE OF FEDERAL REGULATIONS.

A regulatory review of 14 CFR statutes relative to aviation focuses on the federal aviation regulations. This review is documented in a Microsoft® Excel® spreadsheet interactively linked to the referenced publications. The user can click on a link in the spreadsheet to view the appropriate document. This discussion provides a general overview of the specific information referred to in appendix A.

A total of 436 items are shown as evaluated in 14 CFR. Some of the document evaluations were consolidated, as entire documents were categorized into one of the four classifications used in the review: Clearly Applies, May Apply by Interpretation, Does not Apply, or Could Apply With Revision. As a result, the 436 items refer only to those entries listed on the spreadsheet.

Within the rated 14 CFR documents, as shown in figure 1, 30% Clearly Applies to UA operations, while 16% Does not Apply. The remaining items either May Apply by Interpretation (42%) or Could Apply With Revision (12%). These percentages are for the itemized entries on the spreadsheet. A precise, line-by-line discussion of applicability for all 14 CFR documents may alter these percentages, but in general, 14 CFR is applicable to UAS.

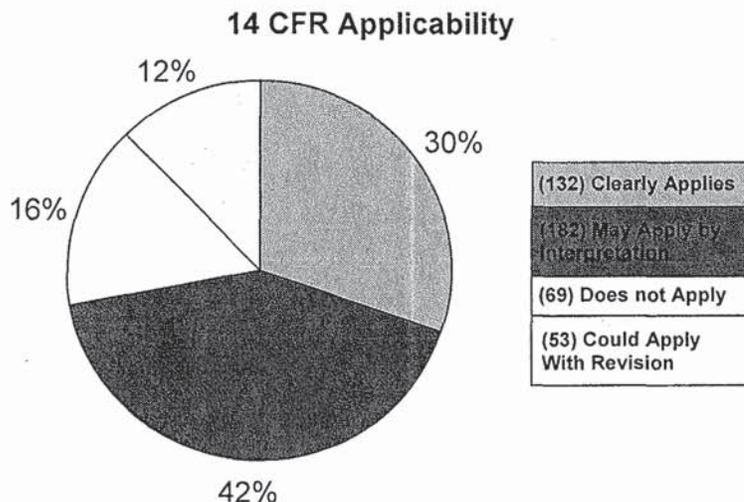


Figure 1. The 14 CFR Review Summary

In many instances, the rating of May Apply by Interpretation is based upon the assumption that a UA may be considered certified (e.g., aircraft, rotorcraft, etc), in which case, the regulation may be interpreted to apply to a UA.

14 CFR 1.1 is a list of definitions but does not provide a definition of a UA or a UAS. As the remainder of 14 CFR is examined, it is clear either that there is no guidance for the current or future UAS developer or operator or that such individuals or entities are governed by all current and applicable regulations. The latter option fails to consider whether the aircraft or rotorcraft is piloted by an onboard human being or is operated remotely by a human being using a form of data link and communications technology. The implications of not altering the regulatory environment to include guidance for UAS are two-fold. First, those wishing to operate UAs in the NAS do so at their own risk, subject to after-the-fact interpretations and applications of the regulations by the FAA through enforcement proceedings. Second, potential users must proceed as if they are designing, building, and operating unmanned vehicles that comply with the same regulations as manned aircraft, thus requiring full certification and operational capability.

Table 1 is a sample from 14 CFR 1.1 and shows the complexities of interpretation of the current regulations.

Table 1. The UAS-Related Definitions Contained in 14 CFR 1.1

Term	Definition	Questions
Aircraft	Device that is used or intended to be used for flight in the air	Does size, weight, speed, intended use, or navigation/communication capability have any bearing on the definition? What about model aircraft? Do all <u>aircraft</u> require registration and a pilot's license to fly/operate?
Aircraft engine	Engine that is used or intended to be used for propelling aircraft	Would this also include miniature turbojets or reciprocating engines that power model aircraft? (yes if literal)
Airframe	Fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls	Does this include even the ground-based control station from which a UAS operator/pilot would control the aircraft?
Airplane	Engine-driven fixed-wing aircraft heavier than air, that is supported in flight by the dynamic reaction of the air against its wings	Does this include UAS powered by electric motors, which is technically not the same thing as an "engine," but the practical effect is the same?
Crewmember	Person assigned to perform duty in an aircraft during flight time	Taken literally, anyone operating a UAS is by definition not a crewmember. What are they, then? Are they subject to any of the other regulations, such as operating limitations in Part 91, or qualifications under Part 61? Can an unmanned aircraft be legally (in compliance with the CFRs) flown by someone who is not by definition a crewmember?

The current regulations recognize two broad categories of aircraft: (1) regulated aircraft (any general aviation or commercial aircraft), and (2) lightly regulated, nontraditional aircraft (ultralights).

A third category of unregulated flying devices that is defined as aircraft according to the 14 CFR 1.1 definition, but probably was not contemplated by the authors of those regulations, includes radio-controlled model aircraft. Some of these recreational models, while purportedly not flown for any commercial purpose (in compliance with AC 91.57), are larger and, in some cases, much faster than many commercial UAs, yet they remain an unregulated UA.

Where UAs fit into the current or any future regulatory scheme depends upon how they will be defined and categorized. This, in turn, may be driven by the need to classify types of UAs on the basis of a variety of characteristics:

- Operating altitudes
- Endurance
- Operational characteristics (such as vertical takeoff and landing capabilities)
- Operating environment
- Mission type (intent), either in a military or civilian setting
- Kinetic speed and/or mass
- Takeoff weight
- Range and maximum altitude
- Gross categories, such as size (wingspan, weight, etc.) or complexity (wind-up rubber band versus miniature jet turbines)

14 CFR Part 21 provides the procedures for certification. It is also the first Part of 14 CFR with a full range of ratings. As noted earlier, the questions that require resolution are the definition of a UA or UAS and whether it should be a certified product. Results of this study show 9% Clearly Applies, 77% May Apply by Interpretation, 3% Does not Apply, and 11% Could Apply With Revision, as shown in figure 2. The assumption, again, is that a UAS is a certified product and, therefore, is governed by this regulation.

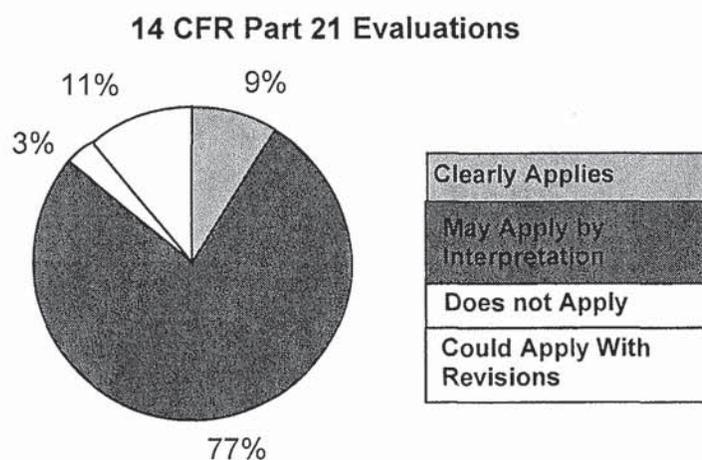


Figure 2. The 14 CFR Part 21 Review Summary

14 CFR Part 23 covers airworthiness standards for normal, utility, acrobatic, and commuter category airplanes. If a UA or UAS is certified, a significant portion of this regulation applies. As shown in figure 3, 3% Clearly Applies, 66% May Apply by Interpretation, 18% Does not Apply, and 13% Could Apply With Revision.

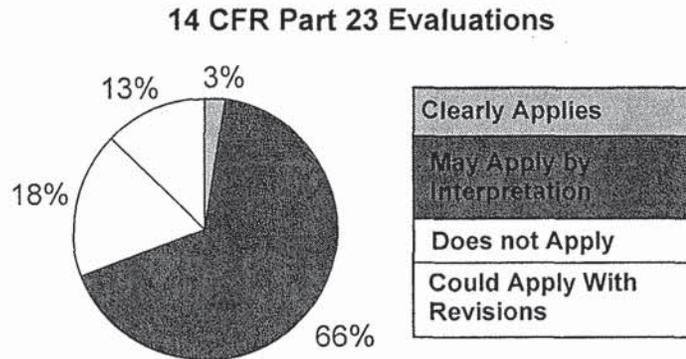


Figure 3. The 14 CFR Part 23 Review Summary

14 CFR Part 25 defines the airworthiness standards for transport category airplanes. The individual paragraph evaluations can be divided into two categories: (1) those that require a crew member or are in place because of crew members Does not Apply (44%) and (2) items not associated with crew members May Apply by Interpretation (66%), depending upon how a UA or UAS is defined for regulation.

14 CFR Part 27 describes airworthiness standards for normal category rotorcraft. As with 14 CFR Part 25, the dividing line between the two evaluations noted is the human factor. Those items referring to crew members Does not Apply (20%). Items not associated with crew members May Apply by Interpretation (80%), depending upon how a UA or UAS is defined for regulation.

14 CFR Part 29 defines airworthiness standards for transport category rotorcraft. As with normal category rotorcraft, the dividing line between the two evaluations noted is the human factor. Those items referring to crew members Does not Apply (38%). Items not associated with crew members May Apply by Interpretation (62%), depending upon how a UA or UAS is defined for regulation.

14 CFR Part 61 covers certification of pilots, flight instructors, and ground instructors. Much of the applicability of this regulation hinges upon whether a UA or UAS is a registered aircraft or rotorcraft and whether its operator is defined as a pilot. As shown in figure 4, the evaluations for this regulation included 17% May Apply by Interpretation, 17% Does not Apply, and 66% Could Apply With Revision.

14 CFR Part 61 Evaluations

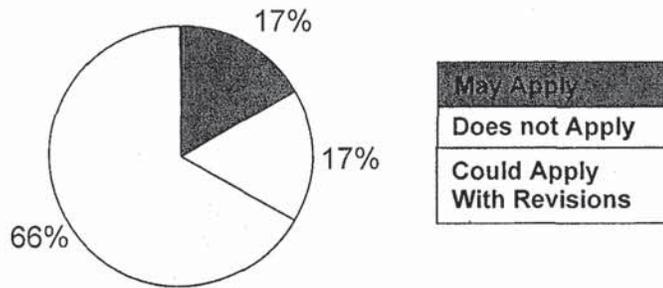


Figure 4. The 14 CFR Part 61 Review Summary

14 CFR Part 65 covers certification of airmen other than flight crew members. As with previous reviews, this section is influenced by whether a UA or UAS is considered a registered aircraft or rotorcraft. In this case, the evaluations for this regulation included 67% May Apply by Interpretation and 37% Does not Apply.

14 CFR Part 91 prescribes rules governing the operation of aircraft. Again, applicability is tied to a definition for UA or UAS. In this review, the evaluation showed 36% Clearly Applies, 37% May Apply by Interpretation, 23% Does not Apply, and 4% Could Apply With Revision, as shown in figure 5.

14 CFR Part 91 Evaluation

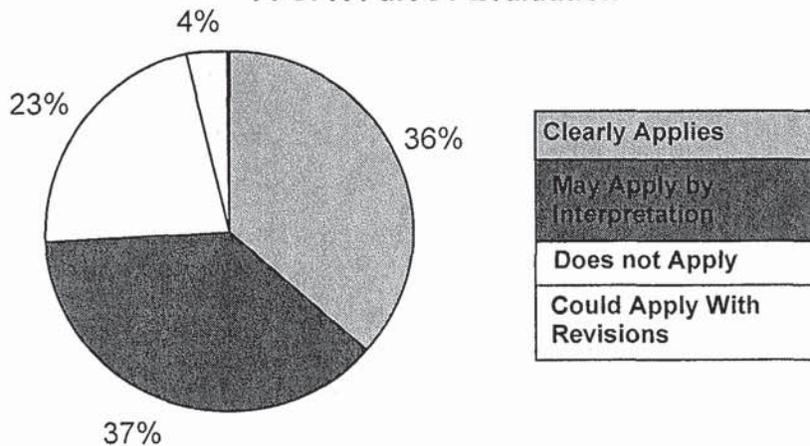


Figure 5. The 14 CFR Part 91 Review Summary

14 CFR Part 137 prescribes rules governing agricultural aircraft operations. Depending upon the definitions of UA or UAS, almost all of this regulation applies: 35% Clearly Applies, 56% Could Apply With Revision, and the remaining 9% Does not Apply, as shown in figure 6.

14 CFR Part 137 Evaluation

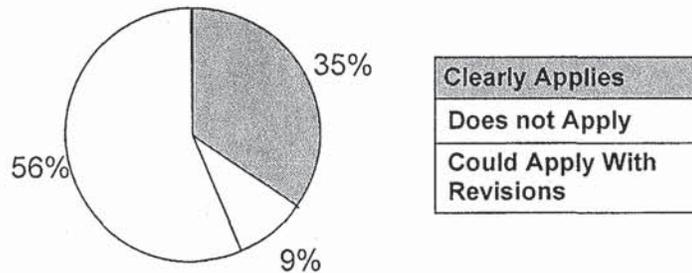


Figure 6. The 14 CFR Part 137 Review Summary

The remaining sections of the 14 CFR mostly fall into one or two of the evaluation rating sections. All are prefaced by the assumption that the UAS community will fall under the definition of a certified and/or registered item. The review resulted in 14 CFR Parts evaluated as follows:

- Clearly Applies

Part Number	Subject Matter
3	Record Making
11	Rulemaking Procedures
14	Equal Access to Justice
39	Airworthiness Directives
47	Aircraft Registration
49	Recording of Aircraft Titles and Security Documents
60	Certification: Pilots, Flight Instructors, and Ground Instructors
71	Designation of Airspace
73	Special Use Airspace
77	Objects Affecting Navigable Airspace
95	Instrument Flight Rules Altitudes
97	Standard Instrument Approach Procedures
99	Security Control of Air Traffic
183	Representatives of the Administrator
185	Testimony and Legal Proceedings
187	Fees
189	Use of FAA Communications Systems
193	Protection of Information
198	Aviation Insurance

- Does not Apply

Part Number Subject Matter

17	Protests and Contract Disputes
31	Airworthiness Standards: Manned Free Balloons
105	Parachute Operations
121	Operating Requirements: Domestic, Flag, and Supplemental Operations
125	Certification and Operations: Airplanes Having a Seating Capacity of 20 or More...
129	Operations: Foreign Air Carriers
135	Operating Requirements: Commuter and On Demand
139	Certification of Airports
150-161	Airport Related Regulation
200 Series	Office of the Secretary Department of Transportation Proceedings
400 Series	Commercial Space Transportation
1200 Series	National Aeronautics and Space Administration
1300 Series	Air Transportation System Stabilization

- May Apply by Interpretation

Part Number Subject Matter

16	Airport Enforcement
34	Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes
35	Airworthiness Standards: Propellers
43	Maintenance, Preventive Maintenance, Rebuilding, and Alteration
45	Identification and Registration Marking
93	Special Air Traffic Rules
119	Air Carriers and Operators for Compensation or Hire: Certification and Operations
133	Rotorcraft External-Load Operations
136	National Parks Air Tour Management
145	Repair Stations
147	Aviation Maintenance Technician Schools
170	Criteria for Air Traffic Control Services and Navigation Facilities
171	Non-Federal Navigation Facilities

- Could Apply With Revision

Part Number Subject Matter

33	Airworthiness Standards: Aircraft Engines
67	Medical Standards and Certification
101	Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons
103	Ultralight Vehicles
141	Schools and Other Certificated Agencies
142	Training Centers

- The remaining regulations, evaluated but not broken down into sections in the spreadsheet, showed mixed results:

Part Number Subject matter

13	Investigation and Enforcement (5% Does not Apply, 95% fell in one of the other three evaluations)
15	Federal Tort Claims Act Administrative Claims and Indemnification (sections either Clearly Applies or Does not Apply)
36	Noise Standards: Aircraft Type and Airworthiness Certification (Appendices Clearly Applies, Basic Could Apply With Revision)

3.3 OTHER U.S. REGULATIONS AND DOCUMENTS.

3.3.1 United States Code.

The application of regulations within the transportation codes is contingent upon the definition of UAS and UA. In 49 CFR 107 and 49 CFR 175 regarding the transportation of hazardous materials, the regulations fell into the May Apply by Interpretation category. In other areas of 49 CFR, such as sections 106 (g)(1)(A), 40101 (a)(1), 40101 (d)(1), 40102 (a)(3), 40102 (a)(6), 40102 (a)(22), 40102 (a)(24), and 44701 (d)(2), regulations fell into the Clearly Applies category.

In both Title 5 United States Code (USC) 552 (Freedom of Information Act) and Title 18 USC 5101-5123 (Hazardous Materials Transportation Act) regulations fell into the Clearly Applies category for UAS operations.

The focus of this study was the regulation of UAS operations in the NAS. In the early stages of the research, it became obvious that the complexity of the UAS as a system (vehicle, control and communications links, etc.) subject it to regulations in many areas, such as, transportation, communications, and security. The research team, therefore, consciously limited its review of USC and CFR to those noted.

3.3.2 Advisory Circulars.

A review of ACs highlighted the need for a definition of a UAS. Of the ACs reviewed, all potentially apply to UAS Operations: 44% Clearly Applies, 43% May Apply by Interpretation, and 13% Could Apply With Revision, as shown in figure 7.

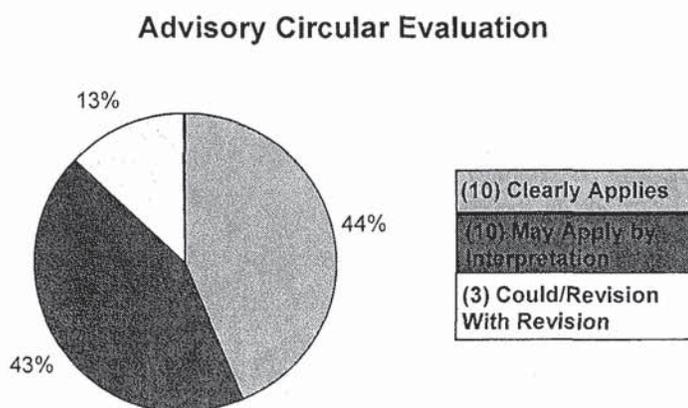


Figure 7. The AC Review Summary

The extensive volumes of ACs should be reviewed at greater depth after a definition of UAS is established.

Included in the ACs is a publication that refers to Model Aircraft Operating Standards (91-57). This publication and the lack of a regulatory definition for either a model aircraft or UA and UAS, blurs the line between what has been acceptable self-regulation of the model aircraft community and the growing pressure for, as yet undefined, UA operations.

3.3.3 Aeronautical Information Manual.

The research team recognized that the Aeronautical Information Manual (AIM) provides the basic flight information and air traffic control procedures for manned operations in the NAS. A majority of the AIM should be applicable to UAS operations, once their definition and status is codified. At that time, the AIM should be thoroughly reviewed and modified, as necessary, to incorporate needed changes. The team deferred an in-depth AIM review at this time.

3.3.4 The FAA Orders and Policy Statements.

All FAA Orders were evaluated for applicability to UAS. The results showed that 43% Clearly Applies, 19% as May Apply by Interpretation, and 38% remain in an Undetermined status, as shown in figure 8. The Undetermined group pertains primarily to military operations. Those regulations could potentially fit into the Could Apply With Revision category.

FAA Orders Evaluation

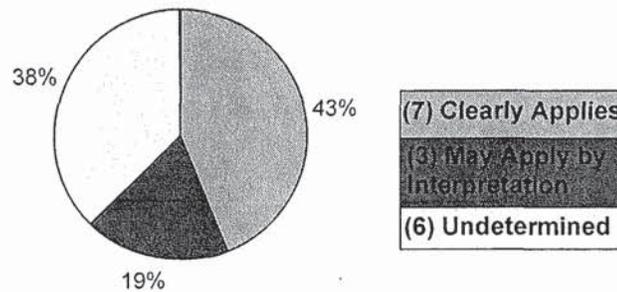


Figure 8. The FAA Orders Review Summary

Four policy statements were reviewed. Of the four, two statements were categorized as Clearly Applies pertaining to UAS operations.

The FAA Memorandum, Flight Standards Service (AFS)-400 UAS Policy 05-01 "...provides guidance to be used to determine if unmanned aircraft systems (UAS) may be allowed to conduct flight operations in the U.S. National Airspace System (NAS)." The following information is also provided.

- UA operations have increased dramatically during the past several years. In response to this increasing activity, it has become necessary to develop guidance for the Flight Technologies and Procedures Division (AFS-400) staff to use when evaluating applications for Certificates or Waiver of Authorization (COAs). This policy is not meant as a substitute for any regulatory process. This policy was jointly developed by, and reflects the consensus opinion of, AFS-400; the Avionics Systems Branch (AIR-130), FAA Aircraft Certification Service; and the Office of System Safety and Procedures, FAA Air Traffic Organization (ATO).

Although not a regulation, this policy memorandum sets forth framework of a regulatory scheme to operate military UAS in the NAS. It specifically states in section 6.2 that civil COAs will not be considered, and that anyone intending to operate a civil UAS in the NAS will have to follow current airworthiness certification processes. At first glance, it would appear that merely removing the language pertaining to civil COA applications would create a policy for civil UAS operations without a formal regulation, but perhaps it would serve as a precursor to a Notice of Proposed Rulemaking or a mechanism leading to a formal set of rules for UAS operations in the NAS.

Also included in this memorandum is the start of a definition for a UAS.

"Unmanned Aircraft – a device that is used or intended to be used for flight in the air that has no onboard pilot. This includes all classes of airplanes, helicopters, airships, and translational lift aircraft that have no onboard pilot. A UA is an aircraft as defined in 14 CFR 1."

A Policy Statement issued February 13, 2007, cited at 72 FR 6689, "Unmanned Aircraft Operations in the National Airspace System," is intended to be a further clarification of the current FAA policy regarding operations of UA in the NAS. The policy states, in part:

"The current FAA policy for UAS operations is that no person may operate a UAS in the National Airspace System without specific authority. For UAS operating as public aircraft the authority is the COA, for UAS operating as civil aircraft the authority is special airworthiness certificates, and for model aircraft the authority is AC 91-57.

The FAA recognizes that people and companies other than modelers might be flying UAS with the mistaken understanding that they are legally operating under the authority of AC 91-57. AC 91-57 only applies to modelers, and thus specifically excludes its use by persons or companies for business purposes.

The FAA has undertaken a safety review that will examine the feasibility of creating a different category of unmanned "vehicles" that may be defined by the operator's visual line of sight and are also small and slow enough to adequately mitigate hazards to other aircraft and persons on the ground. The end product of this analysis may be a new flight authorization instrument similar to AC 91-57, but focused on operations which do not qualify as sport and recreation, but also may not require a certificate of airworthiness. They will, however, require compliance with applicable FAA regulations and guidance developed for this category."

The comment period for this Policy Statement commenced February 13, 2007, and is not limited by the text of the document.

3.3.5 Technical Standard Orders.

TSOs provide regulatory standards for aviation-related systems and equipment associated with certified aircraft. The team's review found all the selected TSOs relevant to UAS and UA, assuming the UA is to be a registered aircraft, as shown in figure 9.

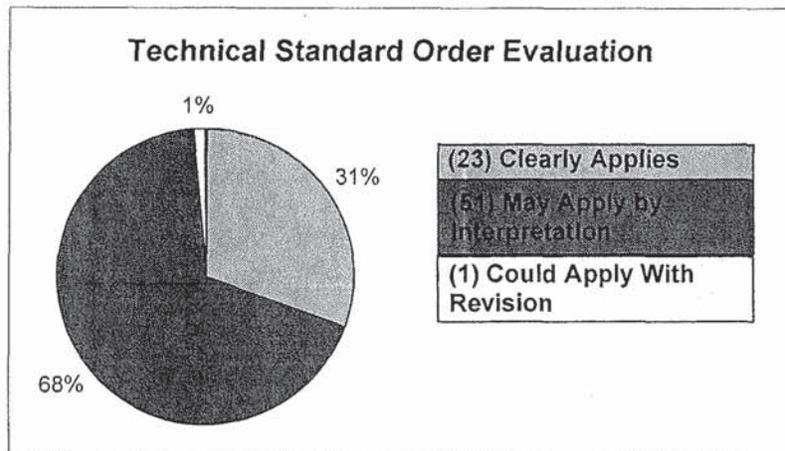


Figure 9. The TSO Review Summary

3.3.6 Industry Documents.

The Radio Technical Commission for Aeronautics (RTCA) Special Committee (SC) 203 was formed in 2004. The primary responsibility of SC-203 is to develop Minimum Aviation System Performance Standards (MASPS) for UAS. A MASPS specifies characteristics that should be useful to designers, installers, manufacturers, service providers, and users of systems intended for operational use within a defined airspace. A MASPS describes the system (subsystems/functions) and provides information needed to understand the rationale for system characteristics, operational goals, requirements, and typical application. SC-203 also reviews the issues of ground pilot training and qualifications, and making appropriate recommendations.

SC-203's mandate includes the establishment of MASPS for Unmanned Aircraft Systems by December 2005; MASPS for Command, Control, and Communication Systems for Unmanned Aircraft Systems by June 2006; and MASPS for Sense and Avoid Systems for Unmanned Aircraft Systems by December 2007. The Committee's stated philosophy is to use a systems approach to determine the acceptable "Expected Behavior" of an Unmanned Aircraft within a defined airspace, to establish safety and performance requirements based upon required functionality, and to honor the cornerstone directive to "do no harm."

RTCA documents reviewed by the team, with the exception of DO-304, were in draft status and, therefore, were not categorized.

4. SUMMARY.

Of all the regulation documents reviewed, only 12% did not apply to unmanned aircraft systems (UAS) operations. The remaining documents clearly apply to UAS operations (33%) or could be made to apply by interpretation (44%) or revision (11%).

As noted earlier, a total of 436 items were evaluated in Title 14 Code of Federal Regulations (CFR). Other document evaluations were consolidated, as entire documents were found to fall

within one of the four classifications used in the review: Clearly Applies, May Apply by Interpretation, Does not Apply, or Could Apply With Revision.

A general working definition of an unmanned aircraft (UA) was found in FAA AFS-400 UAS Policy 05-01, but no regulatory definition of a UA or UAS was found in any existing regulation. The operative element of UAS is “aircraft,” which is defined by 14 CFR 1.1.

Additional questions that may need clarification are:

- What is the effect, if any, of the modifying word “unmanned” on the regulation of aircraft?
- Is there a class of UA that, for whatever reason, need not be regulated under the current safety mandate of “do no harm”?

To determine if and how the current regulatory scheme applies to UA, a more in-depth analysis of regulations should be conducted.

The challenges to the FAA in regulating UAS operations in the National Airspace System (NAS) are to

1. define the terms associated with UAS operations (such as UAS, UA, crew, and operator).
2. define those UAs conventionally known as model aircraft and to determine if they are to be allowed continued self-regulation.
3. review, set, and implement required operational capabilities for UAS operations.
4. revise regulations, as required, to encompass and facilitate introduction of UAS activity in the NAS.

Although aviation technology has made significant progress since 1941, the basic precepts under which the regulatory agency (first, the Civil Aviation Administration (CAA), then the Civil Aeronautics Board, and then the FAA) operates have changed little in the ensuing 66 years. The FAA has broad powers to secure safe operation of aircraft. It does so through issuance of airmen’s certificates, airworthiness certificates, and control and oversight of the national airspace. The current regulatory scheme has evolved over a substantial period, but the framers of the regulatory scheme and their successors clearly never envisioned the inclusion of UA or unmanned rotorcraft in the NAS. The unique technological challenges presented by UAS and the growing demands and needs of the UAS community, whether military, civil, or public, call for an appropriate response to implement regulatory change. The recommendations for consideration are

- to develop a legal definition of a UAS and its associated elements (hardware, software, crews, interlinks, etc), either internally or in cooperation with industry and other interested parties. This should include systems not subject to regulation and should allow application of the appropriate current regulations to UAS operations.

- to perform more detailed reviews of the 14 CFR Parts, the AIM, Technical Standard Orders (TSO), Advisory Circulars, and other operationally oriented regulations to review applicability and suggest modifications for UAS operations.
- to conduct a regulation review with an emphasis on foreign and International Civil Aeronautics Organization regulation activity of UAS operations to allow interoperability of U.S.-certified systems in the international environment.
- to conduct an industry survey concerning future UAS technology applications.
- to review historical documents in the FAA archives and the law library that could provide guidance on the meaning and intent of pertinent regulations. This may facilitate a more comprehensive understanding of how the current regulations apply to UA operations.

Due to the sheer number of existing regulations that clearly apply or could apply by interpretation or amendment, the burden that falls on the rulemakers is either (1) to go through every regulation and statute and appropriately amend each one to resolve any ambiguity as to whether and how it applies to UAS design, manufacture, and operation, or (2) to create an entirely new subpart of 14 CFR that specifically addresses the particular issues that arise from UAS operation. The latter strategy was employed in the creation of 14 CFR Part 91.1001-1443, which pertains to fractional ownership of business aircraft. By specific reference to other relevant parts and subparts and by filling in the gaps with new language, the FAA brought the fractional ownership community fully within the regulatory scheme through the rulemaking process, and did so without economically disrupting the growing business aircraft industry. Perhaps the same goal can be achieved with UAS.

APPENDIX A—RESEARCH DATA

The research data is included in a Microsoft® Excel® file accompanying this report. The data may be accessed as follows:

From the CD:

1. Double click on “Appendix A.”
2. Double click on “Regulation Study_11-29_Rev5”
3. The tabs at the bottom indicate specific areas of the Regulations Review. Select one, and click on the tab.
4. When an evaluation area has a blue “x,” it has linked regulatory material.
 - a. To view, click on the “x”
 - b. To close, click on the “x” in the upper right of the dropdown

This file can also be downloaded separately from www.actlibrary.tc.faa.gov.