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

800 Independence Ave., S.W.
Washington, D.C. 20591

September 17, 2015

Exemption No. 12910
Regulatory Docket No. FAA–2015–2118

Mr. Craig Peck
Flying Media
837 Willow Road
Lancaster, PA 17601

Dear Mr. Peck:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated May 28, 2015, and September 3, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Flying Media (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography for the motion picture and television industry for scripted closed-set filming.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

**Airworthiness Certification**

The UAS proposed by the petitioner are the AeroNavics Sky Jib and DJI Flame Wheel F550.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in

consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

**The Basis for Our Decision**

You have requested to use a UAS for aerial data collection[1].. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

**Our Decision**

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Flying Media is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection.. This exemption is subject to the conditions and limitations listed below.

[1] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

**Conditions and Limitations**

In this grant of exemption, Flying Media is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the AeroNavics Sky Jib and DJI Flame Wheel F550 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents,

the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative. Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on September 30, 2017, unless sooner superseded or rescinded.

Sincerely,
/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

Flying Media

May 28, 2015



U. S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Re: Exemption Request Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from 14 C.F.R. 45.23(b);14 CFR Part 21;14 CFR 61.113 (a) & (b); 91.7 (a);91.9 (b) (2);91.103(b); 91.109;91.119; 91.121; 91.151(a);91.203(a) & (b);91.405 (a); 91.407(a) (1); 91.409 (a) (2);91.417 (a) & (b).

Dear Sir or Madam:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, Flying Media, developer and operator of Small Unmanned Aircraft Systems ("sUASs") equipped to conduct aerial photography for the motion picture and television industry for scripted closed set filming, hereby applies for an exemption from the listed Federal Aviation Regulations ("FARs") to allow commercial operation of its sUASs, so long as such operations are conducted within and under the conditions outlined herein or as may be established by the FAA as required by Section 333.[1]

As described more fully below, the requested exemption would permit the operation of small, unmanned and relatively inexpensive sUAS under controlled conditions in airspace that is 1) limited 2) predetermined 3) controlled as to access and 4) would provide safety enhancements to the already safe operations in the film and television industry presently using conventional aircraft. Approval of this exemption would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities to "...establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

The name and address of the applicant is:

Flying Media
Attention: Craig Peck
Phone: 717 475 2482
Email: cpeck@flyingmedia.net
Address: 837 Willow Road, Lancaster PA 17601

1 The conditions proposed by the applicant are drawn from Order 8900.1 CHG 0, Volume 3, Chapter 8-Issue a Certificate of Waiver for Motion Picture and Television Filming.

Regulations from which the exemption is requested:

14 CFR Part 21
14 C.F.R. 45.23(b)
14 CFR 61.113 (a) & (b)
14 C.F.R. 91.7 (a)
14 CFR 91.9 (b) (2)
14 C.F.R. 91.103
14 C.F.R. 91.109
14 C.F. R. 91.119
14 C.F.R. 91.121
14 CFR 91.151 (a)
14 CFR 91.203 (a) & (b)
14 CFR 91.405 (a)
14 CFR 407 (a) (1)
14 CFR 409 (a) (2)
14 CFR 417 (a) & (b)

This exemption application is expressly submitted to fulfill Congress' goal in passing Section 333(a) through (c) of the Reform Act. This law directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Secretary is required to determine which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within visual line of sight of the operator.

Reform Act § 333 (a). Lastly, if the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." *Id.* §333(c) (emphasis added)[2].

The Federal Aviation Act expressly grants the FAA the authority to issue exemptions. This statutory authority by its terms includes exempting civil aircraft, as the term is defined under §40101 of the Act, that includes sUASs, from the requirement that all civil aircraft must have a current airworthiness certificate.

2 Applicant interprets this provision to place the duty on the Administrator to not only process applications for exemptions under section 333, but for the Administrator to craft conditions for the safe operation of the UAS, if it should be determined that the conditions set forth herein do not fulfill the statutory requirements for approval.



Flying Media · Craig Peck · 837 Willow Road, Lancaster PA 17601 · 717-475-2482 cpeck@flyingmedia.net

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections 44702-44716 of this title if the Administrator finds the exemption in the public interest. 49 U.S.C. §44701(f) *See also* 49 USC §44711(a); 49 USC §44704; 14 CFR §91.203 (a) (1).

Flying Media's sUASs are rotorcraft, weighting 55 or fewer lbs. including payload. They operate, under normal conditions at a speed of no more than 50 knots and have the capability to hover, and move in the vertical and horizontal plane simultaneously. They will operate only in line of sight and will operate only within the sterile area described in the Aerial Camera Platforms OPERATIONS MANUAL, attached as Exhibit 1 (hereinafter "the Manual")[3]. Such operations will insure that the sUAS will "not create a hazard to users of the national airspace system or the public."[4]

Given the small size of the sUASs involved and the restricted sterile environment within which they will operate, the applicant falls squarely within that zone of safety (an equivalent level of safety) in which Congress envisioned that the FAA must, by exemption, allow commercial operations of UASs to commence immediately. Also due to the size of the UASs and the restricted areas in which the relevant sUASs will operate, approval of the application presents no national security issue. Given the clear direction in Section 333 of the Reform Act, the authority contained in the Federal Aviation Act, as amended; the strong equivalent level of safety surrounding the proposed operations, and the significant public benefit, including enhanced safety, reduction in environmental impacts, including reduced emissions associated with allowing UASs for movie and television operations, the grant of the requested exemptions is in the public interest. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

AIRCRAFT AND EQUIVALENT LEVEL OF SAFETY

The applicant proposes that the exemption requested herein apply to civil aircraft that have the characteristics and that operate with the limitations listed herein. These limitations provide for at least an equivalent or even higher level of safety to operations under the current regulatory structure because the proposed operations represent a safety enhancement to the already safe movie and television filming operations conducted with conventional aircraft.

3 Applicant submits this manual as a Confidential document under 14 CFR 11.35 (b) as the entire manual contains proprietary information that the applicant has not and will not share with others. The manual contains operating conditions and procedures that are not available to the public and are protected from release under the Freedom of Information Act 5 USC 552 et.seq.

4 Reform Act Section 333 (b).

These limitations and conditions to which Flying Media agrees to be bound when conducting commercial operations under an FAA issued exemption include:

1. The sUAS will weigh less than 55 lbs.
2. Flights will be operated within line of sight of a pilot and/or observer.
3. Maximum total flight time for each operational flight will be 30 minutes. Flights will be terminated at 25% battery power reserve should that occur prior to the 30 minute limit.
4. Flights will be operated at an altitude of no more than 400 feet AGL or, not more than 200 feet above an elevated platform from which filming is planned.
5. Minimum crew for each operation will consist of the sUAS Pilot, the Visual Observer, and the Camera Operator.
6. sUAS pilot will be an FAA licensed airman with at least a private pilot's certificate and/or third class medical, or US Driver's License. The observer will hold at least a third class medical.
7. sUAS Pilot will be Pilot in Command (PIC). If a pilot certificate holder other than the sUAS Pilot, who possess the necessary PIC qualifications, is also present on set (i.e. the Aerial Coordinator), that person can also be designated as PIC.
8. The UAS will only operate within a confined "Sterile Area" as defined in the Manual. The Manual requires the establishment of a "Security Perimeter" for the flight operations area.
9. A briefing will be conducted in regard to the planned sUAS operations prior to each day's production activities. It will be mandatory that all personnel who will be performing duties within the boundaries of the safety perimeter be present for this briefing.
10. The operator will file a FAA Form 7711-1, or its equivalent, as modified in light of the requested exemption, with the appropriate Flight Standards District Office.
11. The operator will obtain the consent of all persons involved in the filming and ensure that only consenting persons will be allowed within 100 feet of the flight operation, and this radius may be reduced to 30 feet based upon an equivalent level of safety determination, as required by the Manual. With the advanced permission of the relevant FSDO, operations at closer range can be approved.
12. The operator will submit a written Plan of Activities to the FSDO three days before the proposed shoot as required by the Exemption.
13. Pilot and observer will have been trained in operation of UAS generally and received up-to- date information on the particular UAS to be operated as required the Manual.
14. Observer and pilot will at all times be able to communicate verbally.
15. Written and/or oral permission from the relevant property holders will be obtained.
16. All required permissions and permits will be obtained from territorial, state, county or city jurisdictions, including local law enforcement, fire, or other appropriate governmental agencies.
17. If the sUAS loses communications or loses its GPS signal, the UAS will have capability to return to a pre-determined location within the Security Perimeter and land.
18. The sUAS will have the capability to abort a flight in case of unpredicted obstacles or emergencies.

**14 C.F.R. Part 21, Subpart H: Airworthiness Certificates 14 C.F.R. §91.203 (a) (1)**

Subpart H, entitled Airworthiness Certificates, establishes the procedural requirements for the issuance of airworthiness certificates as required by FAR §91.203 (a) (1). Given the size and limited operating area associated with the aircraft to be utilized by the Applicant, an exemption from Part 21 Subpart H meets the requirements of an equivalent level of safety under Part 11 and Section 333 of the Reform Act. The Federal Aviation Act (49 U.S.C.§44701 (f)) and Section 333 of the Reform Act both authorize the FAA to exempt aircraft from the requirement for an airworthiness certificate, upon consideration of the size, weight, speed, operational capability, and proximity to airports and populated areas of the particular UAS. In all cases, an analysis of these criteria demonstrates that the UAS operated without an airworthiness certificate, in the restricted environment and under the conditions proposed will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate without the restrictions and conditions proposed.

The sUAS to be operated hereunder is less than 55 lbs. fully loaded, carries neither a pilot nor passenger, carries no explosive materials or flammable liquid fuels, and operates exclusively within a secured area as set out in the Manual. Unlike other civil aircraft, operations under this exemption will be tightly controlled and monitored by both the operator, pursuant to the Manual's requirements, and under the requirements and in compliance with local public safety requirements, to provide security for the area of operation as is now done with conventional filming. The FAA will have advance notice of all operations. These safety enhancements, which already apply to civil aircraft operated in connection with motion picture and television production, provide a greater degree of safety to the public and property owners than conventional operations conducted with airworthiness certificates issued under 14 C.F.R. Part 21, Subpart H. Lastly, application of these same criteria demonstrates that there is no credible threat to national security posed by the UAS, due to its size, speed of operation, location of operation, lack of explosive materials or flammable liquid fuels, and inability to carry a substantial external load.

**14 C.F.R. § 45.23 (b). Marking of the Aircraft**

The regulation requires:

> When marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable.

Even though the UAS will have no airworthiness certificate, an exemption may be needed as the UAS will have no entrance to the cabin, cockpit or pilot station on which the word "Experimental" can be placed. Given the size of the sUAV, two-inch lettering will be impossible. The word "Experimental" will be placed on the fuselage in compliance with §45.29 (f).

The equivalent level of safety will be provided by having the sUAV marked on its fuselage as required by §45.29 (f) where the pilot, observer and others working with the sUAV will see the identification of the UAS as "Experimental." The FAA has issued the following exemptions to this regulation to Exemptions Nos. 10700, 8738, 10167 and 10167A.

**14 C.F.R. § 61.113 (a) & (b): Private Pilot Privileges and Limitations: Pilot in Command.**

Sections 61.113 (a) & (b) limit private pilots to non-commercial operations. Because the UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating the aircraft to have a private pilot's license rather than a commercial pilot's license to operate this small UAS. Unlike a conventional aircraft that carries the pilot and passengers, the sUAS is remotely controlled with no living thing on board. The area of operation is controlled and restricted, and all flights are planned and coordinated in advance as set forth in the Manual. The level of safety provided by the requirements included in the Manual exceeds that provided by a single individual holding a commercial pilot's certificate operating a conventional aircraft. The risks associated with the operation of the sUAS are so diminished from the level of risk associated with commercial operations contemplated by Part 61 when drafted, that allowing operations of the sUAS as requested with a private pilot as the PIC exceeds the present level of safety achieved by 14 C.F.R. §61.113 (a) & (b).

**14 C.F.R. §91.7(a): Civil aircraft airworthiness.**

The regulation requires that no person may operate a civil aircraft unless it is in airworthy condition. As there will be no airworthiness certificate issued for the aircraft, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the Manual for maintenance and use of safety check lists prior to each flight, as set forth in Sections I and J, an equivalent level of safety will be provided.

**14 C.F.R. § 91.9 (b) (2): Civil Aircraft Flight Manual in the Aircraft.**

Section 91.9 (b) (2) provides:

> No person may operate a U.S.-registered civil aircraft...
>
> (2) For which an Airplane or Rotorcraft Flight Manual is not required by §21.5 of this chapter, unless there is available in the aircraft a current approved airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

The sUAS, given its size and configuration has no ability or place to carry such a flight manual on the aircraft, not only because there is no pilot on board, but because there is no room or capacity to carry such an item on the aircraft.

The equivalent level of safety will be maintained by keeping the flight manual at the ground control point where the pilot flying the sUAS will have immediate access to it. The FAA has issued the following exemptions to this regulation: Exemption Nos. 8607, 8737, 8738, 9299, 9299A, 9565, 9565B, 10167, 10167A, 10602, 32827, and 10700.

**14 C.F.R. § 91.103: Preflight action**

This regulation requires each pilot in command to take certain actions before flight to insure the safety of flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft an exemption will be needed. An equivalent level of safety will be provided as set forth in the Manual. The PIC will take all actions including reviewing weather, flight battery requirements, landing and takeoff distances and aircraft performance data before initiation of flight.

**14 C.F.R. §91.109: Flight instruction:**

Section 91.103 provides that no person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls.

sUASs and remotely piloted aircraft, by their design do not have fully functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. See Exemption Nos.5778K & 9862A. The equivalent level of safety provided by the fact that neither a pilot nor passengers will be carried in the aircraft and by the size and speed of the aircraft.

**14 C.F.R. §91.119: Minimum safe altitudes**

Section 91.119 establishes safe altitudes for operation of civil aircraft. Section 91.119 (d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. As this exemption is for a sUAS that is a helicopter and the exemption requests authority to operate at altitudes up to 400 AGL, or not more than 200 above an elevated platform from which filming is planned, an exemption may be needed to allow such operations. As set forth herein, except for the limited conditions stated in the Manual, the UAS will never operate at higher than 400 AGL. It will however be operated in a restricted area with security perimeter, where buildings and people will not be exposed to operations without their pre-obtained consent.

The equivalent level of safety will be achieved given the size, weight, speed of the UAS as well as the location where it is operated. No flight will be taken without the permission of the property owner or local officials. Because of the advance notice to the property owner and participants in the filming activity, all affected individuals will be aware of the planned flight operations as set forth in Section H of the Manual. Compared to flight operations with aircraft or rotorcraft weighting far more than the maximum 55lbs. proposed herein and the lack of flammable fuel, any risk associated with these operations is far less than those presently presented with conventional aircraft operating at or below 500 AGL in the movie industry. In addition, the low-altitude operations of the sUAS will ensure separation between these small-UAS operations and the operations of conventional aircraft that must comply with Section 91.119.

**14 C.F.R. §91.121 Altimeter Settings**

This regulation requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set "...to the elevation of the departure airport or an appropriate altimeter setting available before departure." As the sUAS may not have a barometric altimeter, but instead a GPS altitude read out, an exemption may be needed. An equivalent level of safety will be achieved by the operator, pursuant to the Manual and Safety Check list, confirming the altitude of the launch site shown on the GPS altitude indicator before flight.

**14 C.F.R. § 91.151(a): Fuel Requirements for Flight in VFR Conditions**

Section 91.151 (a) prohibits an individual from beginning "a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing, and, assuming normal cruising speed – (1) During the day, to fly after that for at least 30 minutes; or (2) At night, to fly after that for at least 45 minutes."

The battery powering the sUAS provides approximately 40 minutes of powered flight. To meet the 30 minute reserve requirement in 14 CFR §91.151, sUAS flights would be limited to approximately 10 minutes in length. Given the limitations on the UAS's proposed flight area and the location of its proposed operations within a predetermined area, a longer time frame for flight in daylight or night VFR conditions is reasonable.

Applicant believes that an exemption from 14 CFR §91.151(a) falls within the scope of prior exemptions. *See* Exemption 10673 (allowing Lockheed Martin Corporation to operate without compliance with FAR 91.151 (a)). Operating the small UAS, in a tightly controlled area where only people and property owners or official representatives who have signed waivers will be allowed, with less than 30 minutes of reserve fuel, does not engender the type of risks that Section 91.151(a) was intended to alleviate given the size and speed of the small UAS. Additionally, limiting sUAS flights to 10 minutes would greatly reduce the utility for which the exemption will be granted.

Applicant believes that an equivalent level of safety can be achieved by limiting flights to 30 minutes or 25% of battery power whichever happens first. This restriction would be more than adequate to return the sUAS to its planned landing zone from anywhere in its limited operating area.

Similar exemptions have been granted to other operations, including Exemptions 2689F, 5745, 10673, and 10808.

**14 C.F.R. §91.203 (a) and (b): Carrying Civil Aircraft Certification and Registration**

The regulation provides in pertinent part:

> (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:
>
> (1) An appropriate and current airworthiness certificate. . . .



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(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under §91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

The UAS fully loaded weighs no more than 55 lbs and is operated without an onboard pilot. As such, there is no ability or place to carry certification and registration documents or to display them on the sUAS.

An equivalent level of safety will be achieved by keeping these documents at the ground control point where the pilot flying the sUAS will have immediate access to them, to the extent they are applicable to the sUAS. The FAA has issued numerous exemptions to this regulation. A representative sample of other exceptions includes Exemption Nos. 9565, 9665, 9789, 9789A, 9797, 9797A, 9816A, and 10700.

**14 C.F.R. §91.405 (a); 407 (a) (1); 409 (a) (2); 417(a) & (b): Maintenance Inspections**

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this chapter...," and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these section and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to the applicant. Maintenance will be accomplished by the operator pursuant to the flight and operating handbook as referenced in the Manual. An equivalent level of safety will be achieved because these small UASs are very limited in size and will carry a small payload and operate only in restricted areas for limited periods of time. If mechanical issues arise the UAS can land immediately and will be operating from no higher than 400 feet AGL. As provided in the Manual, the operator will ensure that the UAS is in working order prior to initiating flight, perform required maintenance, and keep a log of any maintenance performed. Moreover, the operator is the person most familiar with the aircraft and best suited to maintain the aircraft in an airworthy condition to provide the equivalent level of safety.

********

Pursuant to 14 C.F.R. Part 11, the following summary is provided for publication in the Federal Register, should it be determined that publication is needed:

Applicant seeks an exemption from the following rules:
14 C.F.R. §21, subpart H; 14 C.F.R 45.23(b);14 C.F.R. §§ 61.113( a) & (b);91.7 (a); 91.9 (b) (2);91.103(b);91.109; 91.119; 91.121; 91.151(a);91.203(a) and (b); 91.405 (a); 91.407 (a) (1); 91.409 (a) (2); 91.409 (a) (2) and 91.417 (a) & (b) to operate commercially a small unmanned vehicle (55lbs or less) in motion picture and television operations.

Approval of exemptions allowing commercial operations of sUASs in the film industry will enhance safety by reducing risk. Conventional film operations, using jet or piston power aircraft, operate at extremely low altitudes just feet from the subject being filmed and in extreme proximity to people and structures; and present the risks associated with vehicles that weigh in the neighborhood of 4,000lbs., carrying large amounts of jet A or other fuel (140 gallons for jet helicopters shown below). Such aircraft must fly to and from the film location. In contrast, a sUAS weighing fewer than 55 lbs. and powered by batteries eliminates virtually all of that risk given the reduced mass and lack of combustible fuel carried



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on board. The sUAS is carried to the film set and not flown. The sUAS will carry no passengers or crew and, therefore, will not expose them to the risks associated with manned aircraft flights.

The operation of small UASs, weighting less than 55 lbs., conducted in the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting the applicant from the requirements of Part 21 and allowing commercial operations. These lightweight aircraft operate at slow speeds, close to the ground, and in a sterile environment and, as a result, are far safer than conventional operations conducted with turbine helicopters operating in close proximity to the ground and people.

**Privacy**

All flights will occur over private or controlled access property with the property owner's prior consent and knowledge. Filming will be of people who have also consented to being filmed or otherwise have agreed to be in the area where filming will take place.

Set forth below are pictures of aerial filming conducted in both day and night environment, as flown today in highly populated and/or urban areas, with turbine powered helicopters. The grant of this exemption request will provide improved safety in both day and night operations.



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Night operations will also be conducted by sUASs and as shown in the photographs below, such operations are fully lighted so that visibility is as though filming was conducted during daylight hours.

Satisfaction of the criteria provided in Section 333 of the Reform Act of 2012--size, weight, speed, operating capabilities, proximity to airports and populated areas and operation within visual line of sight and national security – provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of applicant's UAS in the motion picture and television industry pursuant to the Manual appended hereto.

Sincerely,

Craig Peck
Flying Media



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## GENERAL
[135.21 and 23]

This manual sets forth Flying Media procedures and policies that are acceptable to the Administrator of the Federal Aviation Administration. This manual will be kept current with revisions as necessary. One copy of this manual will be maintained in current form at the principal operations base. A copy of this manual will be issued (including all changes and additions) to all flight operators, observers, maintenance personnel, and ground operations personnel. All Flying Media flight, ground, and maintenance personnel must use this manual in conducting all sUAS maintenance and flight operations. As required by FAR 135.293(a)(1), all personnel will be tested annually on their knowledge of this manual.

Flying Media has furnished the Federal Aviation Administration with a current and complete copy of this manual. The Director of Operations will furnish the FAA with all changes and additions to this manual in a timely manner.

Flying Media keeps a current and complete copy of this manual with each sUAS. This manual is not contrary to any applicable Federal regulations, applicable foreign regulations, Flying Media operating certificate, or Flying Media operations specifications. If you find a conflict between the Federal Aviation Regulations, certificate, or operations manual specification, the Federal Aviation Regulations will take precedence. You are required to bring any such conflict to the attention of the Director of Operations for correction.

## MANAGEMENT PERSONNEL
[135.23(a)]

FLYING MEDIA has appointed the following persons to the management positions listed:

Director of Operations ..... Craig Peck
Chief Pilot ..... Andrew Wargo
Director of Maintenance ..... Craig Peck

## OPERATIONAL CONTROL

1. Operational Control is defined in FAR 1 as "the exercise of authority over initiating, conducting, and terminating a flight". Operational Control is exercised through both active and passive means. Passive control consists of developing and publishing policies and procedures for operational control personnel and flight operators to follow in the performance of their duties and assuring adequate information and facilities are available to conduct the planned mission. Active control consists of making those decisions and performing those actions necessary to operate a specific flight such as crew scheduling, accepting commercial engagement from the public or governmental entities, reviewing weather, NOTAMs, and flight planning.

   Flying Media is responsible for ensuring that flight operations personnel and operational control employees comply with published policies and procedures.

2. Operational Control systems vary with the type of operation authorized. In accordance with company policy, the major responsibility for operational control is with the Director of Operations. The Director of Operations may delegate the active control of flight to the pilot-in-command, but always retains full responsibility.

## DUTIES AND RESPONSIBILITIES

Each of these people has the authority to act for FLYING MEDIAand, in his respective sphere, exercises operational control under FAR Part 135.77. Their specific duties and responsibilities are:

### Director of Operations

1. Supervises the Chief Pilot and other employees as directed by the President.
2. Ensures that all flight operations are conducted safely and in compliance with all Federal Aviation Regulations, Operations Specifications, and Company policies.
3. Holds the FAA certificate authorization and signs all FAA correspondence and R&M Aerial Imagery operations specifications.
4. Communicates with the FAA Flight Standards District Office (FSDO) and the National Transportation Safety Board (NTSB). Files all required reports and documents.
5. Coordinates all revisions to this manual. Submits the proposed revisions to the FSDO, receives confirmation from the FSDO that the revisions are acceptable, and then distributes those revisions to all Flying Media manual holders.
6. Schedules aircraft flight availability and maintenance actions (required inspections) in concert with the Director of Maintenance.

7. Coordinates with the Director of Maintenance the timely correction of mechanical irregularities and discrepancies.
8. Hires and fires personnel.

**Chief Pilot**

1. Reports to the Director of Operations.
2. Supervises flight operations personnel.
3. Conducts or supervises all training activities of flight operations personnel.
4. Advises the Director of Operations regarding the training of flight operations personnel.
5. Assists the Director of Operations in formulating operations policies, coordinates those policies, and coordinates operations and training.
6. Ensures that all aircraft are properly equipped for applicable operations.
7. Disseminates information to all flight operations personnel pertaining to airports, NOTAMS, company policies, and regulations.
8. Maintains proficiency as Pilot-in-Command.
9. Schedules flight operations personnel, including assigning Pilot-in-Command duties.
10. Prepares and maintains proficiency records, pilot files, flight schedules, duty time records, reports, and correspondence pertaining to flight operations activities.
11. Submits all reports regarding flight personnel to the Director of Operations.
12. Keeps the aircraft copies of this Operations Manual current.
13. Ensures that all flight crew personnel are certified and supervised according to the requirements specified in the Federal Aviation Regulations.

**Director of Maintenance**

1. Reports to the Director of Operations.
2. Responsible for all maintenance and inspection personnel.
3. Ensures that company aircraft are maintained in an airworthy condition.
4. Ensures that all inspections, repairs, and component changes are accomplished in accordance with manufacturer's specifications.
5. Ensures compliance with maintenance procedures, service bulletins, service letters, and applicable Federal Aviation Regulations.
6. Coordinates with maintenance contracting agencies when maintenance activities are being performed on company aircraft.
7. Provides the Director of Operations with the current airworthiness status of the aircraft and the forecast down times to facilitate maintenance scheduling and insure timely deferral or correction of aircraft discrepancies.
8. Maintains a close liaison with manufacturer's representatives, parts supply houses, and repair facilities.

9. Makes available to maintenance personnel the necessary overhaul manuals, service bulletins, service letters, airworthiness directives, applicable sections of this manual, and any other required technical data.
10. Maintains all necessary work records and logbooks, including aircraft permanent maintenance records, including records of aircraft repair and return to service.
11. Maintains the total weight records for all aircraft, batteries and accessories.

**PIC AND Observer**

1. Keep his or her assigned navigation charts current and up to date.
2. Keep his or her assigned copy of this Operations Manual up to date.
3. Report for duty 60 minutes prior to dispatch time. This is for the accomplishment of preflight planning, airframe inspection and documentation.
4. Notify the Director of Operations whenever the pilot may violate any rule due to being dispatched on a mission.
5. Notify the Director of Operations whenever a medical deficiency exists that would affect the safety of flight.
6. Notify the Director of Maintenance whenever an aircraft material deficiency exists that would affect the safety of flight.
7. The Observer will assist the PIC with all flight planning. During flight operations; maintain a constant lookout for other aircraft or hazards, communicate with the PIC as needed, and respond to PIC safety of flight commands.

## WEIGHT AND BALANCE CONTROL
[135.23(b)]

**Weight and Balance Procedures**
Not applicable (NA) to sUAS operations. sUAS will always be conducted with no passengers and there are no changes to airframe total weight, from fuel consumption. Flights will never exceed manufactures stated maximum take-off weight.

## ACCIDENT NOTIFICATIONS REQUIREMENTS
[135.23(d)]

1. The occurrence of any of the following requires Flying Media to notify the National Transportation Safety Board:
    a. An aircraft accident, as defined in NTSB Part 830
    b. A flight control system malfunction or failure.
    c. The inability of any required flight PIC to perform his normal flight duties as a result of injury or illness.
    d. Aircraft collide in flight.
    e. Damage to property (other than an aircraft) if the cost of repair is estimated to exceed $25,000. If the property is considered a total loss, then notification is required if the lesser of the estimated repair cost or its fair market value exceeds $25,000.

2. Flying Media personnel will notify the NTSB in the most expeditious means available as follows
    a. The Pilot-in-Command (PIC) shall notify the Director of Operations, who will immediately notify the NTSB. This notification may be through the FAA (ATC or FSDO), if possible; or may be direct to the NTSB, if necessary.
    b. If the PIC cannot immediately contact the Director of Operations, the PIC will immediately notify the NTSB. This notification may be through the FAA (ATC or FSDO), if possible; or may be direct to the NTSB, if necessary.
    c. If the Director of Operations has good reason to believe the PIC cannot contact him, and that one of the occurrences requiring notification has happened, he will immediately notify the NTSB. This notification may be through the FAA (ATC or FSDO), if possible; or may be direct to the NTSB, if necessary.

EMERGENCY NOTIFICATION

Any Flying Media employee who, under emergency authority, deviates from any Federal Aviation Regulation while on duty will immediately write a complete report of the deviation from Federal Aviation Regulation.. The employee will include a description of the deviation taken and the reasons for it. This information will be sent to the following address no later than ten business days after the day of the deviation.

PA Flight Standards District Office
400 Airport Rd
New Cumberland, PA 17070
717-774-8271

The employee will also provide a copy of this deviation report to the Director of Operations.

**REPORTING AND RECORDING OF MECHANICAL IRREGULARITIES**
[135.23(f), and 135.65(d)]

Whenever a PIC finds a material discrepancy with aircraft or support equipment, they will:

1. Abort the mission.
2. Coordinate with the Director of Maintenance to have the defective equipment repaired.

**PREVIOUSLY DEFERRED AND CORRECTED MECHANICAL IRREGULARITIES**
[135.23(g)]

Not Applicable for sUAS. All material discrepancies will be repaired before flight.

## EMERGENCY PROCEDURES
[135.23(m)]

The Pilot-in-Command (PIC) is the sole company employee assigned all flight emergency duties. Whenever a Observer is assigned to the flight, the emergency duties are assigned as follows:

*Pilot-in-Command*

- **Aviate**. If the aircraft can still maintain flight, keep flying and maneuver to a safe landing position on the ground.
- **Navigate**. Maneuver to a safe position on the ground.
- **Communicate**. Tell Observer the problem(s) you are having.
- Notify proper authorities and request aid. Call after flight termination if necessary.

*Observer*

- Assist the PIC with obvious or requested tasks until the aircraft is on the ground.
- If the PIC is incapacitated, the Observer will assume all emergency duties.

## MISSION QUALIFICATION PROCEDURES
[135.23(n)]

Pilot-in-command: Line checks: Routes and airports
[135.299(c)]

The PIC and Observer will, before beginning a flight:

1. Study the area on low altitude VFR charts as appropriate, noting restricted areas, MEA's, MOCA's, helicopter landing pads, airport routing, and any other pertinent information.
2. Study the area on Google Earth or Bing maps, noting MEA's, routing, buildings, overhead cables, trees, and any other obstacles
3. Study area airports using Airport Facility Directory, noting runway orientations, tower hours of operation, control frequencies and any other pertinent information.
4. In rural areas, study the mission area for bearing and range from any large agricultural fields or crops. Call the local FSS for available aircraft flight information.
5. Check current weather conditions and mission time forecast weather at https://www.aviationweather.gov/.

## APPROVED AIRCARFT INSPECTION PROGRAM
[135.23(o)]

Not Applicable. Flying Media does not maintain any aircraft under the provisions of an Approved Aircraft Inspection Program

## FUNCTIONAL CHECK FLIGHTS (FSF)

1. Place aircraft on open flat ground with indicator lights facing towards you
2. Power on the controller and then the aircraft and bind the controller to the aircraft
3. Set the Home Point
4. Push the throttle up slowly to take off
5. Check roll, pitch, an yaw control response
6. Check throttle response
7. Fly outbound from PIC for 100 feet and hover
8. Climb to altitude of 50' and set position and altitude hold
9. Test Failsafe mode with controller switch to (OFF). When aircraft begins return, interrupt with controller switch to (ON)
10. Test return to home (RTH) by pressing button on controller
11. Allow RTG to land aircraft. Throttle down aircraft until motors stop
12. Turn off aircraft and controller

## OTHER PROCEDURES AND POLICY INSTRUCTIONS
[135.23(r)]

### GENERAL

All company flight operations shall be conducted in a professional and discipline manner. Safety is paramount.

All applicable rules, regulations, procedures and policies will be followed. When confronted with a matter of choice or interpretation in determining a course of action where the decisions are a matter of judgment, the safer alternative will always be chosen.

The policies and procedures contained herein provide basic operational philosophies and included general procedures and regulations applicable to all Company PIC/Observers. For more specific information on aircraft operating procedures, refer to the appropriate Aircraft Owners Manual.

## FLIGHT TRAINING AND TESTING
14 CFR § 91.9

Flying Media's adaptable flight training system will maintain and improve the safety and utility of sUAS flight operations. Flying Media's foundational training program will consistently test a set flight proficicies.

All PICs for Flying Media will hold a FAA licensed airman certificate. This ensures the basic knowledge of FAA rules, terminology, airspace, aerodynamics and flight.

*Pilot logbooks*

Flying Media PICs will maintain a sUAV logbook. Entries will include:

- Date
- Total Flight time or training time
- Flight location
- Type and identification of aircraft
- Flight Simulator used (Heli-X or DJI Inspire)

**Basic Training Course**

*Flying Media flight qualification conducted with company trainer aircraft:*

Initial upon probationary hire:

1) 2 hours of observed simulator flight
   a) Controlled Hover at various altitudes
   b) Controlled flight at constant altitude away from PIC
   c) Controlled flight at constant altitude back and forth in front of PIC
   d) Simulated emergency landing from altitude
2) 5 hours of observed flight time in 'manual' mode, with designated training sUAS. (Manual mode means flying the sUAS without the use of any autopilot software functions such as; altitude hold, position hold or GPS flight modes.)

*Proficiency Tests*

1) Preflight and Battery knowledge
   a) Demonstrate a proper preflight and make ready for flight.
   b) Estimate total testing flight time and ensure enough charged batteries are on hand to carry out the test.
   c) Discuss: proper battery handling, temperature issues affecting charge and discharge, discharge rates at various throttle settings.
2) Hover
   a) Bring the aircraft to a 3 foot hover, nose of the aircraft pointing away 180 degrees (tail on) 6 feet in front of the PIC and evaluator. Visualize a cube 6 foot on each side. Maintain a hover inside this cube for 5 minutes.
   b) Bring the aircraft to a 3 f foot hover, nose of the aircraft pointing toward the PIC (head on) 6 feet in front of the PIC and evaluator. Visualize a cube 6 foot on each side. Maintain a hover inside this cube for 5 minutes.
   c) Fly the aircraft out 100 foot from the PIC and evaluator, tail on. Bring the aircraft to a 3 foot hover. Visualize a cube 6 foot on each side. Maintain a hover inside this cube for 3 minutes.
3) Vertical Obstacle Survey 30 foot
   a) Fly to a standoff distance of approximately 6 foot from the evaluator chosen vertical obstacle, tail on. Keeping the 6 foot standoff distance, climb, in 6 foot sections to the top of the obstacle, stopping for 10 seconds at each 6 foot increase of height. At the top of the obstacle, reverse the

sUAS to head on (to the PIC) and descend the sUAS in 10 foot sections, stopping for 30 seconds each 10 feet.

4) Horizontal Obstacle Survey 50 foot
   a) Fly to a standoff distance of approximately 6 foot from the evaluator chosen horizontal obstacle, tail on. Keeping the 6 foot standoff distance, and maintaining constant altitude, fly the sUAS parallel down the length of the obstacle in no greater than 30 seconds. At the end of the obstacle, reverse the sUAS to head on (to the PIC) and fly the sUAS parallel down the length of the obstacle in no less than 90 seconds.
5) Emergency Landing from altitude
   a) Climb the sUAS to approximately 100 foot and hold position. The evaluator will put down a visible marking about 10 feet in front of the PIC. When instructed, land the sUAS, as soon as possible (undamaged), within 2 feet of the landing marker.

## STERILE OPERATING REQUIREMENT (FAR 135.100)

PICs are prohibited from engaging in any activity during flight, except those required for safe opration of aircraft. Examples of duties and activities prohibited are:

1. Mobile phone cals
2. Eating, drinking
3. Nonessential conversation (remarks not pertinent to safe aircraft operation).

## STANDARDIZATION OF FLIGHT PROCEDURES

PICS and Observers will at all times adhere to published standardized procedures in the conduct of flights. This ensures company aircraft are operated according to procedures that the company deems to be safest

Violaiton of Flying Media Flight operations manual procedures, is considered a breach of code of conduct. Infractions may result in termination of employment.

## FLIGHT OPERATIONS

### 6.1 MISSION PLANNING

Mission planning is the responsibility of the PIC and will cover all matters pertinent to the mission to be flown. Proper planning prevents piss poor performance.

6.1.1 Weather

A complete weather briefing is a prerequisite.

### 6.2 BRIEFING

The success of a flight is a direct measure of the preflight preparations, planning, and briefing

6.2.1 Flight Checklist

1. Pick a Take Off Point; that is flat, dry and located inside the planned flight area.
2. Estimate flight time and battery use for mission photography/survey points.
3. Set recovery point; flat dry location
4. Check wind speed and direction.
5. Check complete horizon for low flying aircraft.
6. Stay clear of structures that could block the Radio Frequency (RF) control or Global Positioning System (GPS) signal; tall buildings, many tall trees
7. Keep the aircraft away from obstacles, people, animals, overhead lines, and trees.
8. Turn off Wi-Fi on any mobile devices. sUAS operational control frequencies operate on 2.4Ghz and 5.8Ghz bands. FCC WiFi bands are 2.4Ghz.
9. Do not fly near areas with high electromagnetic fields (EMF); high voltage lines, large scale power transmission stations, mobile base stations and broadcasting towers.

**==WARNING==**

**FLYING NEAR HIGH EMF TRANSMISSION MAY COMPROMISE THE TRANSMISSION QUALITY AND ERRORS MAY AFFECT FLIGHT ORIENTATION AND LOCATION ACCURACY. AIRCRAFT MAY BEHAVE ABNORMALLY OR FALL OUT OF CONTROL IN AREAS WITH TOO MUCH INTERFERENCE**

10. Do not fly the aircraft within no-fly zones specified by local laws and regulations.

#### 6.2.4 Emergencies

1. Aborts
2. Radio failure; unresponsive to inputs (flyoff) or environmental jamming
3. Loss of visual contact with sUAS
4. Crash; ground, structures, persons

#### 6.2.4.1 Failsafe and Return to Home (RTH)

1. Return to Home will not work if the GPS signal is insufficient or GPS is not active.
2. Press the RTH Button on the remote controller to bring the aircraft back to the Home Point instead of turning off the remote controller.
3. Tall buildings may adversely affect the Failsafe function. Please adjust the aircraft location, altitude and speed while returning home to avoid obstacles.
4. Make sure to always fly the aircraft within the transmission range of the remote controller.
5. When updating the Home Point, do not block the GPS signal of the remote controller Do not update the Home Point near tall buildings, as the GPS may be blocked and lead to an incorrect location being stored.
6. Only use the Failsafe and Return to Home functions in case of emergency, as they may be
7. affected by the weather, the environment, or any nearby magnetic fields.
8. Set/check Failsafe altitude before each flight.

#### 6.2.4.2 Low Battery RTH

The low battery level failsafe is triggered when the battery is depleted to a point that may affect the safe return of the aircraft. PIC will return home or land the aircraft immediately when these warnings are shown. Aircraft will automatically return to the Hopme Point if no action is taken after 10 seconds countdown.

#### 6.2.4.3 Failsafe RTH

ailsafe RTH is activated automatically if remote controller signal is lost for more than 3 seconds provided that Home Point has been successfully recorded and compass is working normally. Return home process may be interrupted and the operator can regain control of the UAS if a remote controller signal is resumed.

**= WARNING=**

**AIRCRAFT CANNOT AVOID OBSTRUCTIONS DURING THE FAILSAFE RTH, THEREFORE IT IS IMPORTANT TO SET A REASONABLE FAILSAFE ALTITUDE BEFORE EACH FLIGHT.**

### 6.3 MISSION

1. Primary
2. Operating area
3. Sequence of events
4. Communications: voice or electroic comms with observer
5. Landing

### 6.4 DEBRIEFING

Each flight shall be followed with a thorough debriefing by the PIC as soon as practical. All areas of flight should be covered, paying particular attention to those areas where any difficulty was encountered.

### 7.2 PREFLIGHT INSPECTION

1. Check that all parts are in good condition. Do not fly with aging or damaged parts.
2. Remote controller, battery and ground station device are all fully charged.
3. Propellers are mounted correctly and securely.
4. Camera lens clear. Survey equipment readied
5. Memory cards inserted, if necessary.
6. Gimbal is functioning as normal.
7. Gimbal is correctly attached to the aircraft.
8. Motors can start and are functioning as normal.
9. All firmware has been updated to the latest version.

7.2.1 Compass

1. Ensure the compass is calibrated before every flight.
2. DO NOT calibrate your compass where there is a chance of strong magnetic interference from large metal objects, parking structures, steel reinforcements underground, or under bridges.
3. DO NOT carry ferromagnetic materials with you during calibration, such as keys or mobile phones.
4. The compass should always be recalibrated when moving from indoor spaces to outdoor spaces.

## MAINTENANCE

1. Check every part of the aircraft if it is violently impacted.
2. Old, chipped, or broken propellers or motors should never be used.
3. Regularly check the battery level and overall battery life. When the battery life reaches 0%, it can no longer be used.
4. After every 10 hours of flight time perform a thorough inspection of parts and components to ensure the safe operations

## USE OF CHECKLISTS

The use of checklists to assist in the proper operation of the aircraft is mandatory for all flights. Only those checklists promulgated by R&M Aerial Imagery will be acceptable, including the methodology and procedures developed for checklist use by Company PICs/Observers.

The PIC completing the checklist (whether silently or by challenge) is responsible for visually checking each item on the checklist, and ascertaining that the correct action has been taken.

Certain portions of the emergency checklist are required to be accomplished immediately, from memory, during an emergency. It is the responsibility of every PIC to commit these portions to memory and review the adequacy of their recall on a frequent basis.

The checklist is not intended as a "worklist" or a crutch to lead crewmembers through their routines of controlling aircraft systems. It is rather envisioned that PIC will maintain sufficient familiarity and proficiency with these routines or "flows" that the checklist can be used as a check to ensure the flows are properly accomplished.

No PIC is expected to attempt to accomplish, without omission, every detail of a flow from memory. Such an expectation would negate the rationale and practicality of using a written checklist. The proper method is to accomplish the flow to the extent possible from memory and then to utilize the checklist to ensure that any overlooked items are then accomplished.

Upon completion of each individual checklist, the PIC will announce, "(Checklist Name) CHECKLIST

A checklist that cannot be completed when initiated because of an interruption or because an item on the checklist cannot yet be completed will be held until the interruption is over or the item can be completed. It is not acceptable to skip a checklist item and then depend on memory to accomplish the item later

## COLLISION AVOIDANCE

Each PIC and Observer is responsible for seeing and avoiding other traffic, terrain and obstacles.

**DOCUMENT CUSTODY FORM**

OP-1

I agree to comply with the following:

1. I am responsible for keeping this Manual number _____ in usable and current condition, inserting revisions when received and recording revision dates and insertion instructions on the Revision Control Page.
2. I will immediately return this manual to Fying Media if I resign my position, am terminated, or take an extended leave of absence.

_____ _____

(Date) (Signature)

Position: _____ _____

Typed or Printed Name:

**REVISION NOTICE**
OP-2

Revision Number _____, dated ____/____/____, becomes effective ____/____/____, issued to _____ for book number _____ or Aircraft Number _____. The person indicated above will complete the revision by removing the outdated pages and inserting the new or revised pages according to the instructions below. He will then sign and date the revision record sheet.
Place the upper portion of this form in the manual behind the revision record sheet and return the lower portion to the Director of Operations.

| Remove: | Insert |
|---|---|
| | |

Return to Director of Operations

I hereby certify that I have received, read, and fully understand the contents of the General Operations Manual Revision Number ___. I further certify that I have revised the operations manual copy in my possession as per the revision instructions.

Signature: _____ Date: _____

September 3, 2015
Docket No FAA-2015-2118
Addendum 1

Flying Media
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Description of aircraft(s) for proposed UAS operation(s):

1. AeroNavics Sky Jib -Ti-QRX4XL, multi-rotor, max. weight (including payload) is 40 lbs.

2. DJI Flame Wheel F550, multi-rotor, max. weight (including payload) is 5.5 lbs.