



U.S. Department
of Transportation

**Federal Aviation
Administration**

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

September 21, 2015

Exemption No. 12931
Regulatory Docket No. FAA-2015-2480

Mr. Jeremy Abshire
Unmanned Tropo Reconnaissance
12011 Indian Wells Drive
Houston, TX 77066

Dear Mr. Abshire:

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 June 1, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Unmanned Tropo Reconnaissance (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial video, photogrammetry, light detection and ranging, thermal imagery, inspections, construction, surveys, aerial mapping, and quantitative volume and estimating analysis.

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 is a Tarot T18.

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 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 collection¹. 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, Unmanned Tropo Reconnaissance 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, Unmanned Tropo Reconnaissance 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 Tarot T18 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.nts.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

Unmanned Tropo Reconnaissance

**IN THE MATTER OF THE PETITION FOR EXEMPTION OF:
UNMANNED TROPO RECONNAISSANCE (U.T.R.)
FOR AN EXEMPTION SEEKING RELIEF FROM THE REQUIREMENTS OF
TITLE 14 OF THE CODE OF FEDERAL REGULATIONS
§ 61.113 (a) & (b), § 91.7(a), § 91.121, § 91.151(b), § 91.405(a), § 91.407(a)(1), § 91.409(a)(1)
& (a)(2), AND § 91.417(a) & (b) CONCERNING COMMERCIAL OPERATION OF A TAROT
T18 UNMANNED AIRCRAFT SYSTEM PURSUANT TO SECTION 333 OF THE FAA
MODERNIZATION AND REFORM ACT OF 2012 (PUBLIC LAW 112-95).**

Submitted on June 1, 2015

Contact Information

Unmanned Tropo Reconnaissance (U.T.R.),

Jeremy Abshire

12011 Indian Wells Dr.

Houston, Texas 77066

Phone: (832) 799-1106

Email: utrsua@gmail.com

Contents

Contact Information.....	1
Glossary of Abbreviations.....	2
Summery	3
The Sections (§) of 14 C.F.R. which U.T.R. seeks Exemption.....	3
Reasons U.T.R. seeks exemption as a relief of the above mentioned Sections of 14 C.F.R.	6
UAS	11
Conclusion.....	11

Glossary of Abbreviations

AD	Airworthiness Directives
AGL	Above Ground Level
AOI	Area of Interest
ATC	Air Traffic Control
ATO	Air Traffic Organization
AV	Aerial Vehicle
CFR	Code of Federal Regulations
COA	Certificate of Authorization
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
GCS	Ground Control Station
GPS	Global Positioning System
LOL	Loss of Link
NAS	National Airspace System
NOTAM	Notice to Airman
PIC	Pilot In Command
Section 333	FAA Mod and Reform Act of 2012 (FMRA) Section 333
SOP	Standard Operating Procedures
UAV	Unmanned Aircraft Vehicle
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules
VLOS	Visual Line of Site
VMC	Visual Meteorological Conditions
VO	Visual Observer
VTOL	Vertical Takeoff and Landing

Summery

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 and Title 14 Code of Federal Regulations Part 11. Unmanned Tropo Reconnaissance (U.T.R.), seeks an exemption from Federal Aviation Regulations Sections to allow the operation of an Unmanned Aircraft System (UAS) for the commercial purpose of conducting aerial video, photogrammetry, LIDAR, thermal imagery, inspections, construction, preliminary thru asbuilt surveys, aerial mapping and quantitative volume and estimating analysis, in, across, through and or beyond the NAS in an attentive and safe manner.

The Sections (§) of 14 C.F.R. which U.T.R. seeks Exemption.

§ 61.113 (a) & § 61.113 (b), entitled *Private pilot privileges and limitations: Pilot in command*, subsections (a) and (b) prescribe the following, in relevant part:

(a) No person who holds a private pilot certificate may act as a pilot in command (PIC) of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as PIC of an aircraft.

(b) A private pilot may, for compensation or hire, act as PIC of an aircraft in connection with any business or employment if:

- (1) The flight is only incidental to that business or employment; and
- (2) The aircraft does not carry passengers or property for compensation or hire.

§ 91.7 (a), entitled *Civil aircraft airworthiness*, subsection (a), states the following: (a) No person may operate a civil aircraft unless it is in an airworthy condition.

§ 91.121, entitled *Altimeter settings*, subsection (a), states the following, in part:

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating

(1) Below 18,000 feet MSL, to-

- (i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

- (ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or

In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure.

§ 91.151 (b), entitled *Fuel requirements for flight in VFR conditions*, subsection (b), states the following:

- (b) No person may begin a flight in a rotorcraft 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, to fly after that for at least 20 minutes.

§ 91.405 (a), entitled *Maintenance required*, subsection (a), states the following:

Each owner or operator of an aircraft—

- (a) 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[.]

§ 91.407 (a) (1), entitled *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, subsection (a) (1), and states the following:

- (a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless-

- (1) It has been approved for return to service by a person authorized under § 43.7 of this chapter [.]

§ 91.409 (a) (1) & § 91.409 (a) (2), entitled *Inspections*, subsection (a), states the following:

- (a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had -
 - (2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

§ 91.417 (a) & § 91.417 (b), entitled *Maintenance records*, subsections (a) and (b), state the following:

(a) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph

(b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include--

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a) (2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

Reasons U.T.R. seeks exemption as a relief of the above mentioned Sections of 14 C.F.R.

§ 61.113 (a) & § 61.113 (b), entitled *Private pilot privileges and limitations: Pilot in command*, subsections (a) and (b) prescribe the following, in relevant part:

(a) No person who holds a private pilot certificate may act as a pilot in command (PIC) of an aircraft that is carrying passengers or property for compensation or hire; nor may that person, for compensation or hire, act as PIC of an aircraft.

(b) A private pilot may, for compensation or hire, act as PIC of an aircraft in connection with any business or employment if:

(3) The flight is only incidental to that business or employment; and

(4) The aircraft does not carry passengers or property for compensation or hire.

Reason

First, unlike a conventional manned aircraft, the aircraft is remotely controlled by a ground-based pilot operator in a controlled and restricted area. Second, the aircraft is much smaller than a manned aircraft that the level of risk associated with its' operation is diminished from the level of risk associated with commercial operations contemplated by part 61. Therefore, allowing aircraft use by a private pilot as the PIC meets or exceeds the present level of safety sought by 14 C.F.R. §61.113 (a) and (b).

§ 91.7 (a), entitled *Civil aircraft airworthiness*, subsection (a), states the following: (a) No person may operate a civil aircraft unless it is in an airworthy condition.

Reason

Maintaining an equivalent level of safety, the PIC will ensure that the aircraft is in compliance with the Pre Flight Operating Manual prior to each flight and Post Flight Operation Manual after each flight. Additionally, the Pilot will still comply with 91.7(b) and ensure that the aircraft is in condition for a safe flight.

§ 91.121, entitled *Altimeter settings*, subsection (a), states the following, in part:
(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating

(1) Below 18,000 feet MSL, to

- (i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;
- (ii) If there is no station within the area prescribed in paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or
- (iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure.

Reason

The T18 does not have a barometric altimeter, but instead uses GPS altitude data. U.T.R. establishes an equivalent level of safety by requiring the Pilot to confirm that the GPS altitude is set to zero at ground level before every flight.

§ 91.151 (b), entitled *Fuel requirements for flight in VFR conditions*, subsection (b), states the following:

(b) No person may begin a flight in a rotorcraft 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, to fly after that for at least 20 minutes.

Reason

The battery powering the T18 provides approximately 25 minutes of powered flight and therefore is unable to meet this requirement. However, flights will not go beyond % mile of the intended landing point and will remain in line of sight at all times. The T18 has a low battery function that automatically sends the aircraft back to its departure point and a critical battery function which automatically lands the aircraft. Also, because the aircraft will be flying in a confined area without the presence of non-essential persons and with landowner and or controller permission, an equivalent level of safety can be achieved by flight planning all flights to return to intended landing site with approximately 15% reserve power.

Due to the similarities in nature (maintenance) the remainder of the Sections will be reasoned with as one

§ 91.405 (a), entitled *Maintenance required*, subsection (a), states the following:

Each owner or operator of an aircraft

(b) 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[.]

§ 91.407 (a) (1), entitled *Operation after maintenance, preventive maintenance, rebuilding, or alteration*, subsection (a) (1), and states the following:

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless-

(1) It has been approved for return to service by a person authorized under § 43.7 of this chapter [.]

§ 91.409 (a) (1) & § 91.409 (a) (2), entitled *Inspections*, subsection (a), states the following:

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had -

(2) An inspection for the issuance of an airworthiness certificate in accordance with part 21 of this chapter.

§ 91.417 (a) & § 91.417 (b), entitled *Maintenance records*, subsections (a) and (b), state the following:

(c) Except for work performed in accordance with §§ 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in paragraph

(d) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include--

(i) A description (or reference to data acceptable to the Administrator) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) and safety directives including, for each, the method of compliance, the AD or safety directive number and revision date. If the AD or safety directive involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by § 43.9(d) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in paragraph (a) (2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under § 43.11 of this chapter shall be retained until the defects are repaired and the aircraft is approved for return to service.

Reason

These sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to U.T.R.'s operations. Maintenance will be accomplished by U.T.R. in accordance with U.T.R.'s Operations Manual. The PIC will ensure that the aircraft is in working order before and after flight mission. The PIC will perform needed inspection and minor maintenance of the aircraft. Additionally, the PIC will conduct detailed inspections of the aircraft every 10 hours of flight intervals. Maintenance performed by the PIC is limited to field repairs. All other maintenance, updates, upgrades and repairs will be completed by a qualified technician before and after mobilization to project location.

U.T.R. will keep a log of maintenance performed. Moreover, U.T.R. and the PIC are most familiar with the aircraft and best suited to maintain it in an airworthy condition. An equivalent level of safety will be achieved because the T18 is limited in size, will carry a small payload and operate only in restricted areas for limited periods of time. The T18 is designed to maintain flight with the failure of one motor. If mechanical issues arise, the aircraft can land immediately and will be operating from no higher than 400 feet AGL.

UAS

The Tarot T18 is an Octocopter frame (size and material almost identical to the S1000.) U.T.R.'s T18 is equipped with the DJI A2 flight control system, the same as S1000 as well as the Inspire.

<http://www.dji.com/product/a2>

Tarot T18 specifications:

- Wing span: 3' 7"
- Height: 16.5"
- Net weight: 24.25 lbs.
- Speed: 50 mph

http://www.tarot-rc.com/index.php?main_page=product_info&cPath=65_98&products_id=1150

Transmitter: Futaba T14SG

<http://www.futaba-rc.com/systems/futk9410-14sg/>

Conclusion

U.T.R. will provide clients with expertise and knowledge in advanced technologies and solutions to increase safety, efficiency, productivity and effectiveness. U.T.R. has over three combined years of operating various radio controlled technologies, has over 10 years of professional experience in many aspects of aerial imagery, GIS, land surveying, mapping and mapping data collection. In addition, he has an in depth understanding of GPS technology in which aids in the control and tracking system of the listed UAS. The objective of U.T.R. is to provide high quality imaging and data for a variety of commercial and residential uses in a safe manner, targeting:

- Real estate
 - Construction preliminary thru asbuilt surveys
 - Cost estimates and quantities
 - Data collection
 - Aerial data and imagery for inspections of structures and facilities.
- Building Inspection operations

U.T.R. will utilize this exemption to increase the safety of today's data acquisition practices along with today's inspection practices and decrease traffic of manned aircraft in the intended industries.