



May 22, 2015

Exemption No. 11656 Regulatory Docket No. FAA–2015–0548

Mr. Todd Thomas Drone Pics P.O. Box 2254 Surf City, NC 28445

Dear Mr. Thomas:

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 February 13, 2015, you petitioned the Federal Aviation Administration (FAA) for an exemption. The exemption would allow the petitioner to operate an unmanned aircraft system (UAS) to conduct aerial photography, videography, and surveying.

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 DJI Phantom 2 Vision+.

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. 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, Mr. Todd Thomas dba Drone Pics 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.

Conditions and Limitations

In this grant of exemption, Mr. Todd Thomas dba Drone Pics 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 DJI Phantom 2 Vision+ 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 5 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 May 31, 2017, unless sooner superseded or rescinded.

Sincerely,

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

Enclosures

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

Re: Exemption Request under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations

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, Todd Thomas dba Drone Pics, the operator of small Unmanned Aircraft Systems ("sUAS"), seeks an exemption from the Federal Aviation Regulations ("FARs") listed below and discussed in Appendix A. Attached as Appendix B is a summary of this request.

The requested exemption would permit commercial operation of Todd Thomas dba Drone Pics sUAS's, which weigh approximately 5lbs. and performs aerial surveys and videography that consists of still photographs and videography taken by onboard cameras. The sUAS's takes a series of high quality, still digital images and video that are used to promote real estate sales and survey in North Carolina. Additional aerial inspections/survey applications may include construction jobsite monitoring, pipeline inspection and precision topological surveys. Use of the sUAS for aerial inspections and surveys reduce the need to utilize conventional manned aircraft, manned lifting devices or manned climbing for the same purpose and provides very high quality imagery at a fraction of the cost. These savings result in enhanced safety, efficiency and productivity for the affected activities, as well as environmental benefits.

Operations under the exemption will be subject to strict operating requirements and conditions to ensure at least an equivalent level of safety to currently authorized operations using manned aircraft and under conditions as may be modified by the FAA as required by Section 333.

As described more fully below, the requested exemption would authorize commercial operations of aerial photos and inspections or surveys using the sUAS's, which weigh less than 5 lbs. and are small in size. (See attached O&M manuals for the DJI Phantom 2 Vision+). The sUAS's will be operated under controlled conditions at low altitude in airspace that is limited in scope, as described more fully herein; it will have automated control features as described below and in the O&M manuals. The sUAS also will be operated by an individual who has FAA Rotorcraft Private Pilot License and has a current medical certification. Finally, the airspace in which the sUAS will operate will be Class G airspace or airspace approved by the FAA in advance.

Todd Thomas dba Drone Pics respectfully submits that because these small, unmanned aerial vehicles will be used in lieu of comparatively hazardous operations now conducted with fixed wing and rotary conventional aircraft or other manned means of inspections, the FAA can have confidence that the operations will achieve at least the equivalent level or greater level of safety. Approval of the exemptions would thereby enhance safety and fulfill the Secretary of Transportation's (the FAA Administrator's) responsibilities under Section 333(c) of the Reform Act to "establish requirements for the safe operation of such aircraft systems in the national airspace system."

The name and address of the applicant are:

Todd Thomas dba Drone Pics

Att: Todd Thomas Ph: 910-262-1135

Email: thotrash@yahoo.com
Address: P.O. Box 2254

Surf City, NC 28445

The regulations from which the exemption is requested are as follows:

14 C.F.R. Part 21;

14 C.F.R. 45.23(b);

14 C.F.R. 61.113(a) & (b);

14 C.F.R. 61.133 (a);

14 C.F.R. 91.7(b);

14 C.F.R. 91.9(b)(2);

14C.F.R. 91.109(a);

14 C.F.R. 91.119;

14 C.F.R. 91.121;

14 C.F.R. 91.151(a);

14 C.F.R. 91.203(a) & (b);

14 C.F.R. 91.405(a);

14 C.F.R. 91.407(a)(1);

14 C.F.R. 91.409(a)(2);

14 C.F.R. 91.417(a) & (b).

Appendix A discusses each rule listed above and explains why exemptions pursuant to the proposal set forth in this letter are appropriate, provide an equivalent level of safety, and are in the public interest.

The Applicable Legal Standard under Section 333

Todd Thomas dba Drone Pics submits that grant of this exemption application for use of the proposed UAS's in precision aerial inspections will advance the Congressional mandate in Section 333 of the Reform Act to accelerate the introduction of UASs into the national airspace system ("NAS") if it can be accomplished safely. This law directs the Secretary of Transportation to consider whether certain UASs may operate safely in the NAS before completion of the rulemaking required under the 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 the light of the following:

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

Reform Act §333(a)(1). If the Secretary determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirement for the safe operation of such aircraft in the national airspace system. "Id. §333(c) (emphasis added).¹

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, from the requirement that all civil aircraft must have a current airworthiness certificate and those regulations requiring commercial pilots to operate aircraft in commercial service:

The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any of the sections 44702-44716 of this title if the Administrator finds the exemption is in the public interest.

¹Applicant submits that this provision <u>places a duty on the Administrator</u> to not only process applications for exemptions under Section 333, but for the Administrator, if he deems the conditions proposed herein require modification in order to allow approval, to supply conditions for the safe operation of UAS. Todd Thomas dba Drone Pics welcomes the opportunity to consult with FAA staff in order to address any issues or concerns that this proposal may raise that they believe may require modification.

49 U.S.C. §44701(f). See also 49 U.S.C. §44711 (a); 49 U.S.C. §44704; 14 C.F.R. §91.203(a)(1).

The grant of the requested exemption is in the public interest based on the clear direction in Section 333 of the Reform Act; the additional authority 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 and cost savings associated with transitioning to UASs for aerial inspections and survey photography and real estate photography. Accordingly, the applicant respectfully requests that the FAA grant the requested exemption without delay.

Airworthiness of the sUAS

A critical element of the exemption application involves evidence of the airworthiness of the sUAS. 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 sUAS. Our small UAS's will operate at low speed in a controlled environment, at least five miles from an airport or densely populated area. 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 a least as safe, or safer, than a conventional aircraft (fixed wing or helicopter) operating with an airworthiness certificate without the restrictions and conditions proposed.

Mandatory Operating Conditions (see O&M and Safety Lists)

Grant of the exemption to Todd Thomas dba Drone Pics will be subject to the following mandatory conditions, which are based upon operating conditions set forth for operation of sUAS by public entities pursuant to Certificates of Authorization, with additional restrictions:

- All operations to occur in Class G airspace.
- Operations to avoid congested or populated areas, which are depicted in yellow on VFR charts.
- Operations to be conducted over private or controlled-access property.
- Permission from land owner/controller required before commencing flight.
- Operations to occur during Visual Flight Rules Meteorological Conditions (VMC).
- Aircraft to remain within Visual Line of Sight (VLOS).
 - VLOS guaranteed with a cylinder of operation around operator of ½ nautical miles (NM).
 - O Cylinder walls may be expanded by observer with ability to control aircraft.
- Operations to occur during daylight hours.
- Above Ground Level (AGL) altitude to be restricted to 400 feet.
- All operations conducted in vicinity of airport to remain more than 2.5 NM from centerline azimuth of runway centerline measured from runway thresholds

 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.

Operator Requirements

Todd Thomas dba Drone Pics respectfully purposes that operator requirements should take into account the characteristics of the particular UAS. Certain UASs, such as the DJI Phantom 2 Vision +, are characterized by a high degree of control and various built-in technical capabilities that limit the potential for operation outside of the operating conditions set forth above. Please see details in the attached O&M manuals.

Additional automated safety functions and safety enhancing features of the sUAS's include the following:

- Auto-pilot detection of lost GPS or of insufficient satellites initiates an immediate return to aircraft take-off location ("home").
- Low power on the aircraft triggers escalating alarms at GCS.
- If the auto-pilot detects a lost-link to the GCS, landing procedure begins.

Given these safety features, Todd Thomas dba Drone Pics proposes that operators of the sUAS shou7ld not be required to hold a commercial pilot certification. Instead, operators should be required to:

- Hold a private pilot license and have a current medical certification.
- Have completed the manufacturer's training or a minimum of 10 hours training program for operation of the sUAS's.

Todd Thomas dba Drone Pics notes that the FAA has found that safety factors permitted operation of sUASs by operators with these qualifications in the case of operations pursuant to public COAs when the mandatory operating conditions specified above were present. See Federal Aviation Administration, Notice N-8900.227, Unmanned Aircraft Systems (UAS) Operational Approval, at 20-21 (July 30, 2013). The FAA has the statutory authority to grant exemptions to the requirements for and privileges associated with the grant of airmen's certificates. 49 USC §44701 (f).

In summary, applicant seeks an exemption from the FARs set forth above in Appendix A to allow commercial operations of a sUAS's conducting precision aerial inspections or surveys and real estate photos.

Approval of the exemption allowing commercial operations of the sUAS for precision inspection, survey work, and real estate photos will enhance safety by reducing risk. Conventional aerial inspection, survey operations, and real estate photos, using jet or piston-powered aircraft present risks associated with vehicles that weigh in the neighborhood of 5,000 to 7,000 lbs., or more, carry large quantities of fuel, passengers, and, in some cases, cargo. Such aircraft must fly to and from the survey location. Other conventional manned climbing or manned lifts risk safety hazards associated with falls, electrical hazards, fuel related hazards, and inhalation associated with the structures being inspected. In contrast, a sUAS weighing less than 15 lbs. and powered by batteries eliminates a portion of that risk given the reduced mass and lack of combustible fuel carried on board a manned aircraft and the lack of risks associated with manned lifts or manned climbing apparatus. The sUAS will carry no passengers or crew and, therefore; will not expose any individuals to the risks associated with manned aircraft flights, manned lifts or climbing hazards.

Additionally, no national security issue is raised by the grant of the requested exemptions. Given the size, load carrying capacity, speed at which it operates, and the fact that it carries no explosives or other dangerous materials, the sUAS poses no threat to national security.

The operation of the sUAS, weighing less than 15 lbs., for inspections, surveys, and real estate photos in accordance with the strict conditions outlined above, will provide an equivalent level of safety supporting the grant of the exemptions requested herein, including exempting Todd Thomas dba Drone Pics from the requirements of Part 21.

The sUAS's satisfaction of the criteria set forth in Section 333 of the Reform Act-size, weight, speed, operating capabilities, lack of proximity to airports and populated areas, operation within visual line of sight, and national security-and its showing of an equivalent level of safety as it may relate to the requirement for FAA training, provide more than adequate justification for the grant of the requested exemptions allowing commercial operation of the sUAS in the commercial aerial inspection, survey, and real estate photo business.

Laco (1/0)

Todd N. Thom

Owner Drone Pics

Enclosures:

Appendix A: Exemption Request and Equivalent Level of Safety Showings under

Applicable Rules Subject to Exemption

Appendix B: Operation and Maintenance Manuals:

DJI Phantom 2 Vision + O&M Manual

Appendix C: Safety Checklists