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

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

July 21, 2015

Exemption No. 11307A
Regulatory Docket No. FAA-2014-1018

Mr. Christopher Lawler
Price Aviation Group
422 Blossom Lane
Frederick, MD 21701

Dear Mr. Lawler:

This letter is to inform you that we have granted your petition for an amendment. It explains the basis for our decision, describes its effect, and lists any changes to the original conditions and limitations.

By letter dated April 26, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Price Aviation Group (hereinafter petitioner or operator) for an amendment to your current exemption. That exemption from §§ 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) of Title 14, Code of Federal Regulations (14 CFR) allows the petitioner to operate a UAS to perform aerial data collection. You requested an amendment to add the PAG X4.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested amendment to the exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner. The unmanned aircraft authorized in the original grant are comparable in type, size, weight, speed and operating capabilities to those in this petition.

Airworthiness Certification

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, C*ertification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

Our Decision

The FAA has determined that the justification for the issuance of Exemption No. 11307 remains valid and is in the public interest. Therefore, under the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, the operator is granted an amendment to add new aircraft to its UAS operations.

The operator shall add this amendment to its original exemption.

Conditions and Limitations

All conditions and limitations within Grant of Exemption No. 11307 remain in effect except as follows. Condition No. 1 has been updated to reflect the additional aircraft.

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 3DR X8+ and PAG X4 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.

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

Sincerely,

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

Enclosures

BASIS FOR THE AMENDMENT TO EXEMPTION #11307

Price Aviation Group (PAG) received a 333 Exemption #11307 to operate a 3DR X8+ for aerial data collection. The aircraft is appropriate for missions that require a heavy payload. PAG is requesting an amendment to Exemption #11307 to operate a smaller UAS for missions that require a smaller payload capacity.

PAG will continue to use 3DR X8+ technology when necessary or until this amendment is approved. PAG is requesting this amendment to operate a smaller UAS. The small UAS is a proprietary design that utilizes the same 3DR command and control functions as the X8+. The technology that is available from this company includes the necessary restrictions on performance to comply with FAA requirements:

Maximum Altitude*	200ft
Range*	984ft from launch point
GPS Lock	GPS lock required at all times
Maximum estimated flight time	15 min
Payload capacity	300 g (.66 lbs.)

PAG's design utilizes the same flight controller and R/C system as the X8+. The change involves the frame and motor configuration. The frame is carbon fiber to reduce gross weight and increase strength. The frame utilizes the same X configuration as the 3DR X8+, with the removal of the additional motor capacity to reduce payload. The reduced payload capacity allows this vehicle to reduce its gross takeoff weight to 4.2 pounds.

All operations manuals approved for the 3DR X8+ will continue to be followed for the X4 including recommended safety and maintenance checks. Modified checklist and design information is included in the Appendix.

Summary for Federal Register publication.

The Rules From Which PAG Seeks Exemption: Conditions and Limitations #1 of Exemption #11307.

A. Brief Description Of The Nature Of The Amendment PAG Seeks:

Price Aviation Group (PAG) seeks an amendment to exemption #11307 to operate a small UAS with an equivalent level of safety. The amendment requests use of a proprietary design to perform aerial data collection.

CONCLUSION

PAG is requesting an amendment to #1 of the Conditions and Limitations issued with Exemption #11307 included as an appendix to this document which states PAG will only operate a 3DR X8+. Allowing PAG to operate a PAG X4 will allow an equivalent level of safety by decreased the UAS gross weight, but maintaining the reliability of proven 3DR technology.

Submitted By:

Christopher
Lawler Price
Aviation Group
April 26, 2015

APPENDIX

Conditions and Limitations

In this grant of exemption, Price Aviation Group 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 3DR X8+ 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.

PAG X4 Checklist

After completion of exemption #11307 requirements.

T/O Checklist

1. Propellers are attached tightly to the motors in the correct order and the GPS mast is oriented vertically.
2. The X4 is powered with the battery secured.
3. The controller is set to CH 7 OFF, standard (STD) mode, and RTL OFF.
4. The status LED displays blinking green, indicating that the X4 has acquired GPS lock.
5. The X4 is situated at a safe, unobstructed launch point, facing away from you.

Flight Checklist

1. Continuously monitor GPS system integrity.
2. Battery monitoring for voltage and capacity.
3. Traffic monitoring through use of visual observer
4. Mission monitoring.

Landing/Post flight

1. Secure area.
2. Return to launch point.
3. Ensure proper disarm of system.
4. Post flight maintenance.

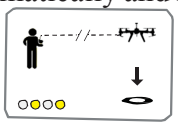
Failsafes

The PAG X4 is programmed with a set of failsafe behaviors to prevent a crash in the event of a loss of one of the data or communication channels required for flight. Although certain failsafes have assigned LED indicators and tones, it is unlikely that you will be able to see these at a distance. Monitor the ground station for failsafe indications. If a failsafe is triggered, the assigned behavior will activate. To override the failsafe behavior, use the controller to switch to standard mode and regain manual control.

RC Controller Signal Failsafe

Physical obstructions and interference from nearby wireless signals can affect the X8's connection with the controller.

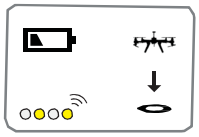
If the X4 loses contact with the controller, it will return to the launch point automatically and land, indicated by a blinking yellow status LED.



Low Battery Failsafe

Environmental conditions, payload, and flying style can affect power consumption. Use the controller's flight data display to monitor the voltage of the battery during flight.

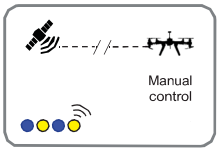
If the battery reaches 14 V, the X4 will land automatically at the current position, indicated by a blinking yellow status LED and a quick repeating tone.



GPS Failsafe

The X4requires GPS lock before takeoff. Enclosed areas, physical obstructions, and lack of available satellites can affect GPS strength. If the X8 loses GPS lock in flight, it will trigger a GPS failsafe, indicated by a blinking blue and yellow LED with a high-high-high-low tone, and automatically switch to manual control (standard - altitude hold mode).

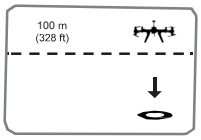
Always be prepared to regain manual control at any time while flying and choose an unobstructed flying area to improve GPS signal strength. When flying a mission, we recommended changing the GPS failsafe behavior to land. (Visit 3DR.com/X8/info for more information about configuring the GPS failsafe.)



Altitude Failsafe

The X4 has a 100 m (328 ft) altitude geofence enabled by default. If the geofence is breached, the X4 will automatically RTL.

400 ft
(120 m)



Range Failsafe

The X4 has a 300 m (984 ft) horizontal geofence enabled by default. If the X8 travels farther than 300 m from the launch point, it will automatically return to the launch point and land. If you plan to fly a mission that exceeds this range, you will need to disable the horizontal geofence. The range failsafe will be disabled in the event of a GPS failsafe.

PAG X4
550mm Carbon Fiber Frame using aircraft grade materials.
Weight at max payload 4.2 lbs.

Electronics

- 3DR-Pixhawk Flight Controller/GPS
  - 3DR Failsafes enabled
- T-Motor-Motors and ESCs
- Spektrum R/C Equipment

Proprietary Landing gear design-available upon request

Bare Frame