



September 11, 2019

U.S. Department of Transportation
Docket Operations
West Building – ground floor
Room W12-140
1200 New Jersey Ave., SE
Washington, DC 20590

Reference: UPS Forward Flight, Inc. Petition for Exemption, Regulatory Docket No. FAA-2019-0628

The Experimental Aircraft Association (EAA) is the world leader in recreational aviation. With an international membership of more than 230,000 people in over 100 nations, EAA brings together pilots, aircraft builders, owners, and aviation enthusiasts who are dedicated to sharing *the Spirit of Aviation* by promoting the continued growth of aviation, the preservation of its history and a commitment to its future.

EAA’s comments to UPS Forward Flight, Inc.’s (herein “UPS FF”) petition for relief from certain rules in 14 CFR 91 and 135 in order to conduct commercial package delivery with unmanned aerial systems (UAS) in beyond visual line-of-sight (BVLOS) operations follow.

Background of EAA’s Position on UAS

EAA remains committed to the philosophy that UAS must be *integrated* into the airspace, with no concessions given to UAS that would encumber manned aircraft¹ in any operation that is presently allowed, nor any equipment mandates imposed on manned aircraft beyond what is already required. Additionally, manned aircraft *must* have the right-of-way in all circumstances.

The safety threat of UAS to manned aircraft is asymmetric – they are too small to be seen under the traditional “see and avoid” principle that relies on the mutual ability of flight crews to physically see all other nearby aircraft when operating under visual flight rules (VFR). Furthermore, the risk of physical harm from a collision is solely borne by the occupants of manned aircraft.

¹ For the purposes of these comments, references to manned “aircraft” include ultralight *vehicles* operated under 14 CFR 103

Our requirements for safe integration of UAS into the National Airspace System should not be interpreted as wholesale resistance to change. To the contrary, we view the UAS industry as rich with opportunities for personal manned aviation, with potential benefits of new participants, infrastructure, technology, and more. But the privileges of our members to safely navigate the airspace as they currently do will always be our first priority, and a non-negotiable condition of our support for UAS integration.

Risks of Proposed Operating Model

UPS FF's Concept of Operations (CONOPS) has a safety model that relies heavily on pre-planned, approved routes for its operations, initially serving the WakeMed hospital complex in Raleigh, NC and surrounding areas. The proposed equipment, the Matternet M2, carries many safety features to protect persons and property on the ground, but no sense-and-avoid systems to detect manned aircraft. UPS FF states that visual observers (VOs) will be used "when the route requires."

EAA has serious concerns that any UAS operating BVLOS without reliable sense-and-avoid systems can safely integrate into the NAS. Even in suburban and urban areas, there are manned aircraft operating below 400 feet AGL. UPS FF states in its petition that it will coordinate with WakeMed's medical helicopter dispatchers to ensure deconfliction with traffic into and out of the hospital's aviation facility. This statement does not account for other traffic that may be present on the proposed routes, including emergency helicopters from other agencies.

As UPS FF inevitably expands its operations to other areas, it may encounter other manned traffic, such as ultralight vehicles, which are – appropriately – not bound by FAR 91.119's minimum altitude requirements, aircraft flying into and out of backcountry areas and uncharted private airports, and helicopters.

The visual observer principle established in Part 107, as well as the FAA's rules on model aircraft, is a well-proven strategy to avoid conflicts with manned aircraft and other UAS. If UPS FF seeks to move away from this principle, some other means of actively detecting other aircraft must be employed – either through onboard sense-and-avoid as other petitioners have proposed or some type of ground-based sensing system along the route of flight. Flying a UAS in the NAS without any way to monitor other aircraft is not consistent with the concept of integration.

As stated in prior comments on this subject, it is EAA's position that the reliability of any sense-and-avoid or similar systems for manned aircraft avoidance on UAS must meet the FAA Part 25 criteria for "extremely improbable failure conditions," with a failure probability of 10^{-9} . We view UAS traffic avoidance as critical to the safety of manned flight, and they should be held to the same rigor as the safety-critical components of the highest-regulated aircraft they may encounter.

44807 Exemption on Airworthiness

EAA respects the will of Congress in creating 49 USC 44807, which allows exemptions for unmanned aircraft to operate commercially pending type certification. We would, however, request that UPS FF's type certification process be monitored carefully by the office controlling

this exemption, and upon discovery of any unsafe characteristics the operations of the craft be immediately re-evaluated.

Conclusion

As previously stated, EAA's interest in this petition is that UPS FF's operation and that of all UAS users be safely integrated into the NAS alongside manned aircraft. The stakes are simply too high for any other alternative to be acceptable. The UAS community must also find the means to integrate without manned aircraft facing any mandates or restrictions for the benefit of UAS. EAA believes that UPS FF's proposal, as presented in this public document, does not show in sufficient detail how the operator intends to ensure the safety of other aircraft when its UAS is BVLOS. While carefully planned routes are a prudent approach to ensure safety, they do not by themselves guarantee that the operation will not diminish the safety of a dynamic and constantly-changing NAS.

Please do not hesitate to contact EAA if we can assist further.

Respectfully,

A handwritten signature in black ink, appearing to read "Sean Elliott", written in a cursive style.

Sean Elliott
Vice President, Advocacy and Safety