



January 22, 2024

Docket Operations, M-30
US Department of Transportation (DOT)
1200 New Jersey Avenue SE, Room W12-140
West Building Ground Floor
Washington, DC 20590-0001

RE: FAA Proposed Rule: Modernization of Special Airworthiness Certification, Docket ID: FAA–2023–1377.

The National Agricultural Aviation Association appreciates the opportunity to comment on FAA’s Notice of proposed rulemaking (NPRM) for Modernization of Special Airworthiness Certification (MOSAIC).

U.S. Aerial Application Industry Background: NAAA represents the interests of the 1,560 aerial application industry owner/operators and 2,028 non-operator agricultural pilots throughout the United States licensed as commercial applicators that use aircraft to enhance the production of food, fiber and bio-energy; protect forestry; protect waterways and ranchland from invasive species; and provide services to agencies and homeowner groups for the control of mosquitoes and other health-threatening pests.

Within agriculture and other pest control situations, manned aerial application is an important method for applying pesticides, for it permits large areas to be covered rapidly—by far the fastest application method of crop inputs—when it matters most. It takes advantage, more than any other form of application, of the often too-brief periods of acceptable weather for spraying and allows timely treatment of pests while they are in critical developmental stages, often over terrain that is too wet or otherwise inaccessible for terrestrial applications. It also treats above the crop canopy, thereby not disrupting the crop and damaging it. Aerial application has greater productivity, accuracy, speed, and lack of damage to the crop compared to ground application¹. Although the average aerial application company is comprised of but six employees and two aircraft, as an industry these small businesses treat nearly 127 million acres of U.S. cropland each season, which is about 28% of all cropland used for crop production in the U.S. In addition

¹ Kováčik, L., and A. Novák, 2020. “Comparison of Aerial Application vs. Ground Application.” *Transportation Research Procedia* 44 (2020) 264–270.

to the cropland acres, aerial applicators annually apply to 5.1 million acres of forest land, 7.9 million acres of pasture and rangeland, and 4.8 million acres for mosquito control and other public health concerns.

While there are alternatives to making aerial applications of pesticides, aerial application has several advantages. In addition to the speed and timeliness advantage aerial application has over other forms of application, there is also a yield difference – aerial application provides higher crop yields, as it is non-disruptive to the crop and causes no soil compaction, thus improving soil health and the amount grown per acre. Data from a Texas A&M University economics study² and the 2019 NAAA industry survey³ were used to calculate that the aerial application industry is directly responsible for the production of 1.69 billion bushels of corn, 199 million bushels of wheat, 548 million pounds of cotton, 295 million bushels of soybeans, and 3.33 billion pounds of rice annually that would be lost every year without the aerial application of pesticides. The value in additional crop yield that the aerial application industry brings to farmers, input suppliers, processors, and agricultural transportation and storage industries for corn, wheat, cotton, soybean, and rice production in the U.S. is estimated to be about \$37 billion⁴.

The aerial application of crop protection products results in greater harvest yields of crops. This in turn results in less land being used for agricultural production, preserving more wetlands for natural water filtration, forest ecosystems for carbon sequestration and habitat for threatened and endangered species. The Texas A&M⁴ study revealed that the total area of cropland needed to replace the yield lost if aerial application was not available for corn, wheat, soybean, cotton, and rice production is 27.4 million acres, an area roughly the size of Tennessee. Aerial applicators seed 3.8 million acres of cover crops annually⁵. This means that aerial applicators are responsible for helping to sequester 1.9 million metric tons of CO₂ equivalent annually, which according to the EPA would be the equivalent of removing approximately 412,000 cars with carbon-combustion engines from the roads each year.

Comments

NAAA has the following comments and questions regarding the MOSAIC NPRM:

1. NAAA supports the FAA's effort to clarify 21.25(a)(2) regarding type certificates of former military aircraft. The NPRM language of 21.25(a)(2)(i) refers to aircraft types that have "been manufactured in accordance with the requirements of, and accepted for use by, the U.S. Armed Forces." We are aware of aircraft that have been produced under an FAA TC/PC and then subsequently modified to meet the requirements of, and accepted for use by a U.S. Armed Force.

The U.S. Armed Forces have shown increasing interest in modifying/adapting "off-the-shelf" civil aircraft for military use. In these cases, it is not clear if the wording of

² Dharmasena, S. 2020. "How Much is the Aerial Application Industry Worth in the United States?" Research presented at the 2020 Ag Aviation Expo, Savannah, GA. <https://www.agaviation.org/2020aatresearchpapers>

³ National Agricultural Aviation Association. May 2019. "2019 NAAA Aerial Application Industry Survey: Operators." <https://www.agaviation.org/Files/Comments/NAAA%202019%20Operator%20Survey.pdf>

⁴ Dharmasena, S. 2021. "Value of the Agricultural Aerial Application Industry in the United States" Research presented at the 2021 Ag Aviation Expo, Savannah, GA. <https://www.agaviation.org/2021aatresearchpapers>

21.25(a)(2) would allow for a type certificate to be issued for these aircraft after being released from military service. With their FAA Type Certificate pedigree, these aircraft should have a clearer path to a Restricted Category Type Certificate than an aircraft developed exclusively for the military, even though they no longer meet the type design of their original Type Certificate.

To include these aircraft, we would propose modifying the language of 21.25(a)(2)(i) to read: “(i) Has been manufactured or modified in accordance with the requirements of, and accepted by, the U.S. Armed Forces;”

2. In the proposed revision to 21.25(b), the FAA is proposing to codify special purpose operations that have traditionally been granted under the catchall regulation of 21.25(b)(7). While this proposal has merit and promise, it creates some potential implementation issues that need to be addressed and/or understood.
 - a. Multiple Type Certificates have already been issued for Restricted Category aircraft models that already list the approved special purpose operations per 21.25(b). For example, the TCDS of a current production agricultural aircraft lists the special purposes of:
 - Agricultural spraying, dusting, and seeding per FAR 21.25(b)(1),
 - Forest and wildlife conservation (fire fighting) per FAR 21.25(b)(2),
 - Aerial surveying per FAR 21.25(b)(3),
 - Patrolling per FAR 21.25(b)(4), and
 - Drug eradication with the application of herbicides per FAR 21.25(b)(7).

Under the proposed revision to 21.25, which special purpose operations would this aircraft be approved for? Experience would show that it would be some mixture of the sub-purposes listed under the proposed 21.25(b)(1), (b)(2), (b)(3), (b)(4), and (b)(7)(ix). Alternately, as written in the TCDS, it could be argued that all of the sub-purposes of 21.25(b)(1), (b)(2), (b)(3), and (b)(4) are now applicable. When these questions on interpretation arise, who will be the arbitrator to decide what was intended?

Or is it the FAA’s intention to require each holder of a Restricted Category Type Certificate to update these TCDS to specify the new 21.25(b) special purposes? If the TCDS is changed, the Airworthiness Certificates issued for these aircraft would no longer match.

- b. As mentioned in Table 10 of the NPRM, FAA Form 8130-6 “Application for U.S. Airworthiness Certificate” will be updated to add the newly codified special purpose operations. For the aircraft described above in our comment 2(a), what boxes will the applicant check when applying for a new Airworthiness Certificate? Again who will be the arbitrator who has the final decision of the appropriate sub-purposes?

One solution we may suggest is that the FAA Form 8130-6 be updated to allow a

tiered structure where a single check box could be used for 21.25(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), and (b)(6) that would include all sub-operations or, alternately, sub-operations could be applied for independently by checking the sub-tier boxes. An example is included below:

RESTRICTED <i>(Indicate operation(s) to be conducted)</i>	<input type="checkbox"/> Agricultural Use (21.25(b)(1)) - ALL <input type="checkbox"/> Crop spraying, dusting, and seeding <input type="checkbox"/> Livestock and predatory animal control <input type="checkbox"/> Insect control <input type="checkbox"/> Dust control <input type="checkbox"/> Fruit drying and frost control
	<input type="checkbox"/> Forest and wildlife conservation (21.25(b)(2)) - ALL <input type="checkbox"/> Aerial dispensing of firefighting materials <input type="checkbox"/> Fish spotting <input type="checkbox"/> Wild animal survey <input type="checkbox"/> Oil spill response
	<input type="checkbox"/> Aerial Survey (21.25(b)(3)) - ALL <input type="checkbox"/> Aerial imaging and mapping <input type="checkbox"/> Oil, gas, and mineral exploration <input type="checkbox"/> Atmospheric survey and research <input type="checkbox"/> Geophysical and electromagnetic survey <input type="checkbox"/> Oceanic survey <input type="checkbox"/> Airborne measurement of navigation signals

- c. We are concerned that the creation of the specific sub-operations will create an interpretation that many current agricultural operations are no longer approved.

For example, the current 14 CFR 21.25(b)(1) lists “Agricultural (spraying, dusting, seeding, and livestock predatory animal control)”. Under this definition, there are many possible missions that may be performed, such as rangeland vegetation control, fungus control, fertilizer applications, sprout planting, plant growth control, crop health monitoring, aquatic pest control, and terrestrial pest control. These types of specific agricultural operations do not clearly fit under the proposed 14 CFR 21.25(b)(1)(i) “crop spraying, dusting, and seeding” because they are not treating a specified crop. Instead, they could be supporting agricultural needs of livestock or forestry production.

We believe the intent of the proposed revision to 14 CFR 21.25 is not to limit current operations, but the new wording can be interpreted in a limiting way. We do propose that 14 CFR 21.25(b)(1)(i) be reworded to “Any agricultural aircraft operation per 14 CFR 137.3”. This would unify wording between 14 CFR 21.25, 14 CFR 36.1, and 14 CFR 137.3.

3. In the NPRM, the FAA requests comment on whether any categories of aircraft should or should not be subject to part 36 noise requirements. We urge the FAA to continue supporting the exclusion of all agricultural and firefighting aircraft as written in 14 CFR

36.1(a)(2) and 36.1(a)(4). The operation of these aircraft for the protection of property, food, and fiber is in the public interest. Operating limitations per 14 CFR 91.313(e) are in place that restrict operation over a densely populated area, in a congested airway, or near busy airports with passenger transport operations. These operating limitations effectively limit the impact of aircraft-produced noise for these aircraft.

Thank you for this opportunity to comment.

Sincerely,

A handwritten signature in dark ink, appearing to read "Andrew D. Moore". The signature is fluid and cursive, with the first name "Andrew" being more legible than the last name "Moore".

Andrew D. Moore
Chief Executive Officer