January 22, 2024

Docket Operations, M–30;
U.S. Department of Transportation (DOT),
1200 New Jersey Avenue SE, Room W12–140,
West Building Ground Floor,
Washington, DC 20590–0001

Re: FAA-2023-1377; Modernization of Special Airworthiness Certification, Notice of Proposed Rulemaking

EAA (Experimental Aircraft Association), based in Oshkosh, Wisconsin, embodies "The Spirit of Aviation" through the world's most engaged community of aviation enthusiasts. Our more than 290,000 members and 900 local chapters enjoy the fun and camaraderie of sharing their passion for flying, building, and restoring recreational aircraft. EAA's mission is dedicated to growing participation in aviation. We strive to make aviation easier, more accessible, more rewarding, and more fun – igniting and nurturing interest by embracing "The Spirit of Aviation" in all we do.

The Aircraft Owners and Pilots Association (AOPA) is the world's largest aviation membership association representing approximately 300,000 individuals who collectively operate 85% of all general aviation (GA) aircraft in the United States. Since 1939, AOPA's mission has been to protect the freedom to fly while keeping aviation safe, fun, and affordable and to advocate for policies and rules that increase access to aviation opportunities. AOPA is pleased to join the other signing associations in offering these joint comments on behalf of its hundreds of thousands of members in response to the referenced proposed rules.

NATA (National Air Transportation Association) represents nearly 3,700 aviation business locations across a broad cross section of the industry, including on-demand charter air carriers and fractional ownership companies, FBOs, flight training providers, maintenance facilities, airport sponsors at general aviation airports, and others. The Association serves to elevate the safety and professionalism of its members by convening industry thought-provoking leadership on its policy committees, examining contemporary issues, and pursuing solutions that prioritize safety and economic viability.

The National Business Aviation Association (NBAA) represents the interests of over 11,000 business and professional members involved in business aviation. Our members rely on the safety, efficiency and productivity created through the sustainable use of business aircraft. Many individuals involved in business aviation started their aviation careers in light sport aircraft and

we support a strong, diverse and growing platform that expands access to aviation for everyone. The organizations will be referenced herein as "the commenters."

The following comments provide support for and offer constructive feedback to the Federal Aviation Administration's (FAA) Modernization of Special Airworthiness Certification (MOSAIC) Notice of Proposed Rulemaking (NPRM). This proposal builds upon the 20-year success and safe record of the Sport Pilot and Light-Sport Aircraft Final Rule implemented by the FAA in 2004. With this NPRM, the FAA proposes expanding the size, scope, and capability of aircraft that qualify and can be manufactured as Light-Sport Aircraft (LSA). Additionally, the FAA is proposing the expansion of specific privileges to the Sport Pilot Certificate through the use of training and endorsements. The FAA is also proposing changes to the maintenance of Light-Sport aircraft and the training required by those conducting said maintenance in this NPRM.

We commend the FAA for recognizing the success and proposing the expansion of the Light-Sport category of aircraft and Sport Pilot certificates. Most of the proposed changes offered by the FAA recognize and build upon the positive safety record of this community and provide a means to address many of the current limitations stifling further development and growth in this segment. The general aviation community stands to benefit significantly from the implementation of this proposal. We support and strongly encourage the Agency to commit the resources needed to continue to move this proposal forward and implement these changes. Doing so will further enhance the safety, utility, and commercial viability of general aviation by fostering new aircraft designs and further stimulating the development of new technology.

Light general aviation aircraft form the bedrock of the entire aviation industry. Most civil pilots will fly one at some point in their aviation journey, and their operations sustain the countless small airports around the country where many professionals in our field – from mechanics to business managers – get their start. Ensuring the strength, growth, and future of general aviation is vital to ensuring our country can continue to train new pilots and maintenance technicians needed to support the growth of aviation.

The average age of general aviation aircraft is estimated to be nearly 50 years. Despite hours flown in single-engine piston aircraft being at their highest in at least a decade[1], the fleet itself is inexorably aging. Between 2012 and 2021, the total airframe hours of the average single-engine piston aircraft increased by 8.4%.[2] New type-certificated aircraft remain stubbornly out of reach for most small flight schools and private operators, offering no immediate solution to this unsustainable trend.

The FAA's MOSAIC proposal, which expands the definition of aircraft allowed to meet design and production standards set by industry consensus standards rather than prescriptive FAA regulations, is a key component in reversing this trend. This approach has brought certification

[1] 2021 GA Survey
[2] 2012-2021 GA Survey

costs down to the lowest practical level for factory-built aircraft while maintaining a high level of safety, as demonstrated over the past 20 years.

However, and not wholly unexpected for a rule with its genesis in the simplest of general aviation aircraft, the initial parameters on these aircraft limited their viability, potential, and ability to incorporate safety-enhancing equipment. The current maximum gross weight of 1,320 pounds for a fixed-wing landplane requires design concessions that limit useful load and lighten wing loading to the point that their handling characteristics are significantly different from those of a traditional Part 23 aircraft that most pilots will encounter. The limitation of 2 seats and a maximum speed of 120 knots significantly restricts the appeal and commercial viability for potential private owners and those looking to add the aircraft to their rental fleet.

The 20-year track record of Light-Sport Aircraft proves that aircraft can be safely certified by conformity to consensus standards. It is time to realize the full potential of the concept and build aircraft that are practical trainers and personal aircraft.

With more capable and diverse aircraft come more opportunities of the two professional ratings linked to Light-Sport Aircraft: Flight Instructor with a Sport Pilot Rating and Light Sport Repairman Maintenance. These ratings provide an entry into aviation careers at a time and expense commitment more accessible than in the past, thus creating many more aviation professionals. Whether these professionals move on to other ratings and work or continue to support recreational aviation, their firm grounding in general aviation will make them valuable assets to the community.

We believe that, with the changes we are proposing, MOSAIC can be that realization of potential. It eschews an arbitrary gross weight in favor of performance standards, it broadens the definition of the category to allow maturing technologies such as electric propulsion and powered lift, and it brings benefits to the Sport Pilot certificate, among a host of other reforms. It will also encourage kit manufacturers – who sustain one of the largest growth sectors of general aviation – to step up to Light-Sport Aircraft production, applying consensus design standards to more amateur-built aircraft and bringing their excellent aircraft designs to a broader audience through the Light-Sport Aircraft category based on proven kit aircraft.

Our comments will be broadly divided into sections on Light-Sport Aircraft, Sport Pilots, Maintenance of Light-Sport Aircraft, and Other Rule Changes. Also attached is an appendix of comments on areas that may fall outside the strict scope of this NPRM but that we nevertheless feel are related and bear serious consideration on future rulemaking.

Light-Sport Aircraft

Introductory Comment

As noted previously, we strongly support the expansion of the Light-Sport Aircraft category. Doing so will correctly utilize the safety continuum approach to oversight while at the same time leveraging a successful rule that has produced thousands of safe airframes. The Light-Sport rule

has produced certification success in a way that adjacent categories simply have not. We appreciate that the Agency agrees that it is time to fill the gap between Light-Sport and other rules that support small aircraft with differing levels of oversight.

Relocation of the Light-Sport Definition

FAA Proposal

Remove the definition of "Light-Sport Aircraft" from 14 CFR 1.1, relocate to proposed 14 CFR 22.

Commenters' Response

The commenters generally agree with the structural change of removing the Light-Sport Aircraft definition from 14 CFR 1.1 in favor of language in the newly-established 14 CFR 22. Setting the parameters for an entire category of aircraft via a definition caused unique problems, especially around the use of exemptions and other means of regulatory relief.

Additionally, we recommend that a provision be included in the Light-Sport definition to allow consideration and acceptance by the FAA of proposals from manufacturers to utilize safety enhancing technologies and designs as risk mitigations in lieu of meeting the specific regulatory limitations. This would, for example, allow aircraft that do not meet a particular parameter of the definition but carry risk-mitigating safety-enhancing equipment to be certificated as Light-Sport Aircraft at the discretion of the Agency.

Revision of the Definition of Consensus Standards

FAA Request for Comment (paraphrased from the NPRM)

The FAA requests comment on whether to remove the definition of consensus standard from 14 CFR 1.1 altogether or revise the definition as proposed. The proposed definition would adopt a description of a consensus standard that better aligns with OMB Circular A–119. Additionally, to be used as a means of compliance for aircraft design, operation, production, maintenance, or airworthiness, a consensus standard would have to be accepted by the FAA. Alternatively, the FAA is considering removing the definition of consensus standard from 14 CFR 1.1. Consensus standard is a commonly accepted term used by industry and across the Federal Government and may not require a definition in 14 CFR 1.1.

Commenters' Response

The commenters support the removal of the definition of consensus standards from 14 CFR 1.1. As noted by the FAA, consensus standards are widely used throughout the aviation industry. This includes as a means of compliance with regulations and policies as well as methods for defining materials (fuel, metals, hardware, etc.) utilized in certification programs. Examples of standards in use include ASTM, RTCA, SAE, MilSpec, and ISO. In recognition of this broad spectrum of use, we feel that the definition should be removed and not further expanded as proposed.

As noted by the FAA, "consensus standards" is a widely understood term with many uses throughout the industry. We are concerned that an attempt at developing and publishing a single definition across the entire industry would negatively impact many of the ways standards are incorporated. A single definition would also not consider the nuances of any given application, such as a certification program, or when defining various components used in production. Therefore, the definition of consensus standards should continue to be specific to the application intended.

Certification of Additional Aircraft Classes in the Light-Sport Category

FAA Proposal

Remove exclusions on aircraft class from the Light-Sport category. Currently, the definition of Light-Sport Aircraft includes only airplanes, gliders, powered parachutes, weight-shift-control, and lighter-than-air aircraft. The proposal would add rotorcraft and powered lift.

Commenters' Response

The commenters agree that there should be maximum regulatory flexibility in the Light-Sport category, and we agree with removing exclusions based on aircraft class from the rule. This will enable future growth of the category with new innovations.

Maximum Takeoff Weight

FAA Proposal

Remove maximum takeoff weight limit of 1,320 lbs (1,430 lbs for aircraft flown from water) from the Light-Sport Aircraft definition.

Commenters' Response

The commenters support the removal of the Light-Sport weight limit. While weight is a common way to regulate aircraft by general size, in Light-Sport Aircraft, it has caused numerous unintended consequences. These consequences include minimal useful load that makes the size of the pilot and passenger a serious limitation, light wing loading that makes handling challenging, and manufacturers building aircraft that can handle higher maximum takeoff weights but limiting their useful load for the sole purpose of meeting the Light-Sport category. Furthermore, removing a maximum takeoff weight will better facilitate the development of Light-Sport Aircraft using electric motors and other alternative powerplants that do not currently have the energy density of piston engines.

Maximum V_H Airspeed in Level Flight

FAA Proposal

Raise the maximum airspeed in level flight (V_H) for Light-Sport Aircraft from 120 knots CAS to 250 knots CAS.

Commenters' Response

The commenters support raising the maximum V_H of Light-Sport Aircraft to 250 knots CAS. Safety statistics do not show maximum speeds to be a significant risk in small general aviation aircraft. A higher V_H will ensure that Light-Sport Aircraft are not built underpowered for the sake of meeting a lower maximum speed thereby sacrificing safety by limiting climb performance.

Maximum Stalling Speed (V_{S1}) for Airplanes

FAA Proposal

For Light-Sport airplanes, as well as legacy airplanes meeting the Light-Sport definition, raise the maximum stalling speed without the use of lift-enhancing devices (V_{S1}, or "clean stall speed") from 45 knots Calibrated Airspeed (CAS) to 54 knots CAS.

Commenters' Response

While we feel that the speed could be increased all the way to the current Primary Category standard of 61 knots, an increase to 58 knots is necessary at minimum.

In removing an explicit gross weight limit, this proposal makes the stalling speed one of the primary defining factors for Light Sport airplanes. A V_{S1} of 54 knots CAS is a step toward this NPRM's objective of making Light-Sport a more useful category, but we feel that a speed of 54 knots is overly restrictive. Without an explicit weight limit, an increase to 58 knots CAS, coupled with the other parameters proposed of seat and speed limitations, would bound the category to the FAA's targeted aircraft size.

We feel that the same safety justification that the FAA uses in the NPRM for raising V_{S1} to 54 knots CAS can also be applied to 58 knots CAS with equal validity. Furthermore, a higher V_{S1} enables a higher V_A speed, which increases the safety range in which an aircraft will not exceed structural limits and allows aircraft to handle more predictably and safely in turbulence and gusty conditions.

There are several alternatives to a single-number stall speed definition that the FAA could consider, such as allowing a higher stall speeds with the installation of safety-enhancing equipment or taking other more nuanced approaches to this definition. In any event, however, the commenters believe that 58 knots CAS should be the universal minimum starting point for V_{S1} in any such discussion.

Maximum Seating Capacity

FAA Proposal

For Light-Sport airplanes, raise the maximum seating capacity from two to four.

Commenters' Response

The commenters strongly support changing the airplane seat count to four seats for Light-Sport Aircraft. Regardless of Sport Pilot privileges (see separate comment on sport pilot passenger

count), four-seat Light-Sport Aircraft would be far more marketable to the general aviation community. Most aircraft used for training and rented by fixed-based operators are four-seat models, demonstrating the need to expand the category. Having two additional seats in larger, more capable Light-Sport Aircraft would aid market desirability. Many existing flight schools utilize the "Gemini" method of flight training, whereby two students are partnered and always observing one another during the conduct of a lesson.

We see no reason to similarly limit seat count in other categories of Light-Sport Aircraft. We feel that from a safety perspective, a four seat helicopter, gyroplane, or even a powered parachute would be no different than a four-seat airplane.

We appreciate the FAA's concern that insufficient data exists to make a determination on more seats in other categories at this time, but we feel that using regulation to codify this limitation is short-sighted. The rule's use of consensus standards is the primary mechanism to ensure safety, and we feel that keeping the seat count at four for all Light-Sport Aircraft will allow these types of aircraft the ability to evolve, with consensus standards keeping pace to allow safe evolution.

The current Light-Sport rule includes limitations that this segment of industry has been asking to be reevaluated for more than a decade, culminating in this NPRM. Leaving room for the consensus standards to grow in the rule, with appropriate FAA oversight and direct acceptance of the standards process, is a smarter approach to growth than relying on future rulemaking.

Powerplant Restrictions

FAA Proposal

Remove the stipulation that a Light-Sport Aircraft, if powered, must have "a single, reciprocating engine."

Commenters' Response

The commenters strongly support the enabling of alternative powerplants under this proposal by removing the requirement for a single, reciprocating engine. This will allow innovative propulsion technologies to be added to this category as it develops, and it will also allow sport pilots to fly aircraft powered by these innovative technologies in different certification categories.

Use of Controllable Pitch Propellers and Retractable Landing Gear

FAA Proposal

Allow Light-Sport airplanes (land or amphibious) to be equipped with inflight-adjustable pitch propellers and/or retractable landing gear.

Commenters' Response

The commenters agree that controllable-pitch propellers and retractable landing gear can be safely added to Light-Sport Aircraft. As the FAA notes, controllable-pitch propellers actually increase safety in certain situations by allowing better climb performance. Additionally, electric

powerplants and piston engines with forced induction are severely disadvantaged without a controllable-pitch propeller at altitude due to the lack of power loss in thinner air.

We have long argued that allowing retractable landing gear on land planes is of minimal safety impact, and we are pleased to see the feature added in this NPRM. While "gear up" events do happen, they rarely result in injury, and we are anticipating the development of new cockpit technology in this category to make the likelihood of such occurrences less and less common. We feel that while these systems do add complexity, they are well-understood technologies in the aviation industry and we are confident that the standards writers can safely implement them into these aircraft.

Inclusion of Gyroplanes to Special Light-Sport Aircraft

FAA Proposal

Remove the exclusion of gyroplanes from the definition of Special Light-Sport Aircraft (S-LSA).

Commenters' Response

The commenters support adding conventional gyroplanes with Fixed-Pitch, Semi-Rigid, Teetering-Two Blade Rotor Systems to the eligible types of Special-Light Sport Aircraft. The exclusion of gyroplanes from the initial light-sport rule in lieu of consensus standards being written and accepted was, in hindsight, an unfortunate decision, as the pace of rulemaking has continued to exclude gyroplanes from this category for far longer than necessary. It is a reminder that regulations should remain broad and defer to the standards organizations (with the FAA being the final authority on acceptance of standards) whenever possible.

Application of Noise Standards to Experimental Aircraft

FAA Proposal

The proposal discusses applying Part 36 noise certification requirements to all aircraft without type certificates. That includes aircraft in the experimental category, such as Experimental-Amateur Built (E-AB) and Experimental Light Sport Aircraft (E-LSA), and existing experimental aircraft that are later modified. The FAA is requesting comments on whether any category of aircraft should or should not be subject to Part 36 noise certification requirements.

Commenters' Response

The commenters strongly disagree with the application of noise standards to experimental aircraft of any type, as the proposed changes to Part 36 would entail extending these requirements to aircraft certificated under 14 CFR 21.191(i). The commenters are also troubled by any suggestion that Part 36 should apply to other categories of experimental aircraft, as discussed in this NPRM's preamble. Our emphatic response to the NPRM's solicitation of comment on the subject is that the experimental category should remain excepted from Part 36.

Applying certification requirements to experimental category aircraft, whether E-LSA, E-AB, exhibition, air racing, etc., negates the purposes of those categories, namely that those categories are for aircraft that are explicitly not compliant with the regulations for any variety of reasons. In

particular, experimental aircraft are often used to innovate and develop technologies and equipment that may eventually be included in certificated aircraft. Applying certification requirements to experimental aircraft would stifle this innovation. There is little demonstrated value in applying Part 36 noise certification and the follow-on requirements for testing to show compliance by individual owners of these categories of aircraft.

The FAA provides no safety justification and little other justification in the proposal to support the significant burden and challenge Part 36 noise certification would impose on owners of these aircraft. The FAA has also provided no evidence demonstrating that current experimental aircraft significantly contribute to aircraft noise complaints or issues.

Furthermore, we dispute the assertion in this proposal's preamble that many experimental aircraft are "nearly identical." They may indeed *appear* identical, but engines, propellers, and exhaust systems vary widely even among similar airframes. A regulatory framework to apply Part 36 to so many components and combinations, none of which require FAA design or production approval, would be onerous, and again would undermine the entire philosophy of the experimental category.

Demonstrating compliance with Part 36 noise certification is difficult, costly, and time-consuming for aircraft manufacturers. Placing these burdensome requirements on the builders of individual aircraft (E-AB and E-LSA) will impede the growth of this segment by creating additional regulations without demonstrated benefit.

Finally, by way of an economic comment in response to this NPRM's request, the preamble states that "The FAA did not anticipate the growth of aircraft that do not conform to type certificates when the categories were created." The commenters would offer that this "unanticipated" growth is precisely because of the reduced regulatory environments in these categories, and we do not feel that there is any justification to change this by subjecting these aircraft to Part 36.

Application of Noise Standards to Special Light-Sport Aircraft

FAA Proposal

Apply noise standards to Special Light-Sport Aircraft via explicit reference in Part 36.

Commenters' Response

We disagree with the application of explicit noise standards under Part 36 to Special Light-Sport Aircraft. This category's defining characteristic is the use of industry consensus standards, and this is the appropriate venue in which to manage the issue of noise in these aircraft. Noise standards, if applied for Special Light-Sport Aircraft, should follow the FAA's methodology of utilizing industry consensus standards in a self-declarative process for demonstrating compliance. If needed, the industry standard, accepted by the FAA, is the methodology that should be used to define an appropriate standard and practice for demonstrating compliance.

These aircraft are limited in size and will likely have a reduced noise profile already. The requirement for applying Part 36 to Special Light-Sport Aircraft would result in an increase in

cost with no benefit to safety. The FAA has provided no evidence demonstrating that current Special Light-Sport Aircraft are a significant contributor to aircraft noise complaints or issues.

Overly constrictive noise certification requirements, such as the application of Part 36, can lead to a detrimental decrease in safety-enhancing aircraft performance.

The NPRM considers Part 36 to be a level playing field with a performance-based standard, where it is, in fact, a tilted playing field based on age and weight. Compliance with Part 36 would require new S-LSA aircraft to be quieter than older certificated aircraft already operating, thus penalizing lighter aircraft with more stringent noise requirements.

Use of Light-Sport Aircraft in Aerial Work and Standards Thereof

FAA Proposal

Expand the permitted use of Special Light-Sport Aircraft to include "aerial work" activities. These are commercial activities that do not involve the carriage of persons or property for compensation or hire.

Commenters' Response

Including aerial work into the authorized uses of a Light-Sport Aircraft will increase their viability in the marketplace at no additional risk to the National Airspace System. The proposed aerial work would not hazard persons or property beyond the aircraft and its flight crew and is an appropriate risk-based expansion of the permitted operation in these aircraft. The commenters support this proposal.

We are, however, concerned that the rule delves into specific areas such as ensuring structural strength for these activities. While structural strength is certainly one of the most crucial design considerations of any aircraft, and anticipated use must always be taken into account, this appears to be a concern better addressed by the FAA-accepted industry standard rather than an explicit rule. With the extremely limited scope of the commercial operations permitted, namely those activities not carrying persons or property for compensation or hire, it is difficult to envision additional standards manufacturers would need to meet to safely allow these activities.

Removal of 14 CFR 21.191(i)(1)

FAA Proposal

Remove 14 CFR 21.191(i)(1), which enabled the certification of legacy "two seat ultralights" prior to January 31, 2008, from the Code of Federal Regulations.

Commenters' Response

While it is accurate that the window for certifying previously-exempted "two seat ultralights" into the Experimental Light-Sport category closed in 2008, removing the regulatory reference would have undesirable unintended consequences. For example, FAR 21.191(i)(1) is referenced

in the proposed regulatory language for new flight training rules and the policies thereof.[3] This reference demonstrates that the removal of this language is already creating confusion even within the NPRM.

With no regulatory "home" for these aircraft, regardless of whether new aircraft can be certificated under the rule, continuing to integrate these aircraft in the National Airspace System would be made needlessly difficult. The rule should remain, even if the certification window is long since closed.

Relocation of application items from 14 CFR 21.193(e) to 21.191(j)

FAA Proposal

Move requirements for the airworthiness application for Experimental Light-Sport Aircraft built from kits from 14 CFR 21.193(e) to proposed 21.191(j).

Commenters' Response

The commenters feel that this is an unnecessary and confusing change. 14 CFR 21.193 houses specific application requirements for experimental airworthiness certificates. 14 CFR 21.191 describes experimental certificates and their certification bases. It is not the appropriate location for application instructions. We recommend that these application requirements remain in 14 CFR 21.193.

Sport Pilots and Instructors with a Sport Pilot Rating

Introductory Comment

We fully support enabling Sport Pilots and Instructors with a Sport Pilot Rating to operate new and legacy aircraft within the expanded Light-Sport definition (including commenters' proposed increase in stall speed). The baseline level of training is not so different between Sport Pilot and higher ratings that any exclusions are merited. As with all pilots and instructors, continued training and endorsements after the issuance of a certificate is critical to maintaining safe operations, and we have no reason to believe that Sport Pilots would be ill-equipped to operate the more capable and, in many ways, better-handing aircraft contemplated under an expanded Light-Sport category.

Many of our comments in this section will be regarding proposed 14 CFR 61.316, which prescribes performance and design limitations for aircraft Sport Pilots can operate. This is in contrast to the current regulations that simply reference the definition of a light-sport aircraft in 14 CFR 1.1.

[3] FAA-2023-1351, "Public Aircraft Logging of Flight Time, Training in Certain Aircraft Holding Special Airworthiness Certificates, and Flight Instructor Privileges", Proposed 14 CFR 91.319(e)(2)

For the sake of brevity, the term "Sport Pilot" includes Instructors with a Sport Pilot Rating where appropriate herein.

Sport Pilot Maximum Airplane Stalling Speed (V_{S1})

FAA Proposal

The FAA is proposing a maximum clean stalling speed (V_{S1}) for airplanes that Sport Pilots may operate of 54 knots CAS,[4] mirroring the increase of 45 to 54 knots proposed for Light-Sport airplanes.

Commenters' Response

We fully support increasing the maximum V_{S1} as a performance limitation for an airplane that a Sport Pilot may operate. Any such increase must *at minimum* mirror any increase for Light-Sport airplanes. Per our previous comment on the subject, we believe that V_{S1} for Light-Sport airplanes could be as high as 61 knots CAS, but should be no lower than 58 knots.

As noted in our previous comment on the maximum stalling speed for Light-Sport airplanes, a higher V_{S1} expands eligibility to airplanes with a higher V_A and more predictable handling characteristics. This is an important safety item for pilots holding higher certificates who are exercising Sport Pilot privileges and are most familiar with legacy aircraft. Under the current regulations, we have heard from many pilots who feel uncomfortable with the handling of Light-Sport airplanes versus legacy aircraft, particularly in gusty takeoffs and landings.

An increase to a V_{S1} of at least 58 knots would ensure that the vast majority of popular trainers would be eligible to be flown by pilots exercising Sport Pilot privileges. It would also simplify the options that flight schools will have in picking legacy aircraft to serve alongside new Light-Sport Aircraft in catering to Sport Pilots.

Ultimately, we strongly believe that Sport Pilots are capable of flying airplanes with a V_{S1} as high as 61 knots CAS. We do not feel that there are any limitations of the Sport Pilot training curriculum and experience requirements that would justify a lower stalling speed, and we feel that the training and checking community can be relied upon to produce safe pilots capable of flying aircraft at this performance level. The only remaining difference between Sport Pilots and higher ratings is a medical certificate. Our twenty-year experience with Sport Pilot and our eight-year experience with BasicMed shows that alternative approaches to medical oversight still produce safe outcomes. We do not feel that a V_{S1} that matches the Primary Category standard of 61 knots CAS will compromise safety.

[4] 14 CFR 61.316(a)(1), as proposed

Sport Pilot Passenger Count

FAA Proposal

The FAA proposes to allow Sport Pilots to fly aircraft with up to four seats[5] but maintain the current limitation of carrying no more than one passenger.[6]

Commenters' Response

The commenters agree with expanding the seat count of Light-Sport aircraft to four, however we propose increasing the passenger count for Sport Pilots from one to three to correspond with this change.

While increasing the number of occupants should be considered carefully, the commenters feel there is adequate safety data to justify this change and we disagree that limiting sport pilots to a single occupant appreciably changes the Sport Pilot certificate's location on the Safety Continuum.

As noted in the NPRM, the FAA stipulates that the skills necessary to operate 2 seat airplanes, versus 4 seat airplanes do not differ, due to the similarity in design, weight, and operational capabilities. Therefore, the skills necessary to operate with one passenger are not different than those necessary to operate with 3 passengers.

Safety risk management is defined as identifying hazards, analyzing associated risks, including the likelihood of a given risk. If operating a 4-place aircraft requires the same skills as necessary for the operation of a 2-place aircraft and the probability of utilization of the third or fourth seat is low, then the increase in risk of allowing a Sport Pilot to carry 3 passengers is so low that it does not justify the 1 passenger restriction. The proposed aircraft performance limitations adequately manage the risk.

If the privileges of the Recreational Pilot certificate as a "higher rating" is a concern, we would submit that we feel the limitation in this category should be reconsidered as well. We further submit that, outside the scope of this NPRM, there may be justification to sunset the recreational certificate and absorb the very few active certificate holders (79 as of 2022)[7] into the Sport Pilot rating if there is full overlap between the two certificates.

Maximum Altitude for Sport Pilots

FAA Proposal

Retain current altitude restriction of Sport Pilots to 10,000 MSL or 2,000 AGL, whichever is higher.[8]

[5] 14 CFR 61.316(a)(2), as proposed
[6] 14 CFR 61.315(c)(4)
[7] 2022 FAA Airman data
[8] 14 CFR 61.315(c)(11)

Commenters' Response

The commenters feel that this NPRM is an opportune time to raise the general Sport Pilot altitude restriction from 10,000 to 12,500 MSL. This will allow for better clearance of mountainous terrain and eliminate the need to calculate AGL in many cases. Greater terrain clearance and higher altitudes over treacherous areas will increase safety margins. This will offset any slight increase in hypoxia risk, which can be further mitigated by safety practices such as hypoxia awareness training and pulse oximetry, both of which are as easy to obtain today as they have ever been.

12,500 MSL is a natural delineation for the Sport Pilot rule, as rules on supplemental oxygen begin to take effect above this altitude. Nevertheless, under the current rules a Sport Pilot may already fly in excess of 14,000 MSL through several charted mountain passes. Increasing the MSL ceiling to 12,500 would allow greater safety margins at minimal physiological risk.

The commenters also support raising the above-ground allowance in high terrain from 2,000 to 3,000 AGL. There are areas of the country where the prominence of mountains makes it difficult to remain within a certain AGL of the terrain, but an extra 1,000 feet would nevertheless be helpful. We would also support an alternative to pure AGL that makes mountain flying safer and easier for Sport Pilots to assure compliance.

Night Operations by Sport Pilots

FAA Proposal

Allow Sport Pilots to operate at night with appropriate training and endorsements. Sport Pilots operating at night must hold either a valid FAA medical certificate or operate under BasicMed.

Commenters' Response

The commenters strongly agree with allowing Sport Pilots, with the appropriate training, to fly at night. As stated in the NPRM's preamble, allowing night flying privileges would promote better aeronautical decision making by removing time pressure on pilots to terminate a flight or reach a destination as darkness sets in.

The requirement for either an FAA medical certificate or BasicMed, however, dramatically reduces the utility of this provision to Sport Pilots. A large percentage of Sport Pilots are airmen with higher ratings who choose to exercise Sport Pilot privileges. If these airmen obtain a medical certificate, they can simply operate with a higher rating. This obviates any advantage offered by the privilege to fly at night as a Sport Pilot.

Most airmen who receive the Sport Pilot certificate *ab initio* also value the ability to self-certify their medical ability to fly with a valid state-issued driver's license under 14 CFR 61.53. By the time most are ready to obtain an FAA medical certificate they are also ready to attain a higher rating.

Nevertheless, we acknowledge that there are vision factors unique to night flying that may not by adequately evaluated on most states' driver's license requirements.

The predominant issue tested on the 3rd class medical with respect to night vision is color vision. Color vision is congenital and inherently stable regardless of age in the absence of eye disease. We instead propose a *one-time* requirement for a Third-Class medical (also required by BasicMed), OR a self-attestation of color vision in combination with the proposed Sport Pilot night endorsement.

Our proposed alternative is as follows.

In order to fly at night, a Sport Pilot must have had:

- At least one third-class medical certificate, the most recent of which did not have a night flying limitation, or
- A self-certification by the airman that they can distinguish red, green, and white lights, AND
- A one-time night endorsement from an authorized flight instructor, as already proposed in this NPRM. This endorsement will ensure that the Sport Pilot has the practical ability to fly at night.

Additionally, airmen with higher ratings choosing to operate as a Sport Pilot at night should be eligible for night privileges based on previous experience, regardless of whether they have specifically received the Sport Pilot night endorsement.

Use of Controllable-Pitch Propellers and Retractable Landing Gear by Sport Pilots

FAA Proposal

Allow Sport Pilots to fly aircraft with controllable-pitch propellers and retractable landing gear, with appropriate training and endorsements.

Commenters' Response

We support the use of endorsements to enable Sport Pilots to use these features. Providing for the use of Neither Sport nor Private Pilots are taught how to use these systems as part of their standard curriculums, so there is no reason why a Sport Pilot would be uniquely unqualified to receive endorsements in this area. As with many facets of aviation, specific and thorough training on the systems makes the difference. We support adding controllable-pitch propellers and retractable landing gear to the list of eligible endorsements for Sport Pilots.

New Rotorcraft-Helicopter Privilege for Sport Pilots

FAA Proposal

Add helicopter operating privilege for Sport Pilots. Uniquely among Sport Pilot certificates, the proposed rule stipulates that helicopter Sport Pilots may *only* fly Special Light-Sport helicopters with "simplified flight controls." All other Sport Pilot ratings allow the pilot to fly any aircraft meeting the Light-Sport definition regardless of certification category.

Commenters' Response

The commenters support adding helicopter operating privileges to the Sport Pilot certificate but question the need to restrict these pilots to helicopters with simplified flight controls holding Light-Sport airworthiness certificates. As with airplanes, we believe airmen can be safely trained to operate helicopters with conventional controls in an appropriately scaled Sport Pilot curriculum.

We also note that "simplified flight controls" only appear in the regulatory language in the context of Light-Sport helicopters that Sport Pilots may fly. Other than as a definition, this term appears nowhere else in the proposed rule. We do not believe that helicopters merit this unique classification, as training and standards can be made appropriate to helicopters with conventional controls.

To that end, we would highlight that for more than three decades there has been an existing curriculum and training standard for the Recreational Helicopter pilot certificate. Recreational Helicopter Pilots are not restricted to aircraft with "simplified flight controls." If pilots can be safely trained to standards under the Recreational Pilot certificate with a helicopter rating, we would propose that Sport Pilots can be as well. With a similar curriculum to the Recreational Pilot certificate, the only major difference between the two would be the requirement for a recreational pilot to hold an FAA medical certificate or BasicMed, and the commenters do not feel that a medical certificate adds any more to the operation of a helicopter than it would any other class of aircraft (within the operational constraints of a sport pilot certificate).

Maintenance of Light-Sport Aircraft

Changes to the Light-Sport Repairman Maintenance Rating

FAA Proposal

Change the certification requirement for the Light Sport Repairman Maintenance (LSRM) rating from a course based on 120 hours of instruction to a curriculum aligned with the Airman Certification Standards (ACS) for Aviation Mechanic General, Airframe, and Powerplant (A&P).

Commenters' Response

We disagree with this proposal. While a seemingly minor change, this could balloon the time needed to obtain the LSRM rating from the current three-week course.

The NPRM gives no justification for this change, and we do not believe that there is data in the 20-year history of the existing rule that supports a safety argument against the current way of certifying LSRMs. On the contrary, we have numerous examples of Light-Sport Aircraft, especially unique types such as powered parachutes, weight shift control, and aircraft with newer engine technology being *incorrectly* maintained by traditional A&Ps.

While the certification requirements for LSRM differ from more traditional maintenance ratings, it is important to note that Light-Sport Aircraft have unique standards for maintenance manuals that contain more detailed instructions for maintenance personnel on the specific aircraft. This is an important contrast to the traditional A&P certificate, which grants broad maintenance privileges based on similarly broad training. The LSRM training curriculum is instead designed to allow the certificate holder to perform maintenance only on Light-Sport Aircraft and only by following detailed manufacturer-prescribed manuals.

Dramatically increasing the time and expense needed to obtain the LSRM rating will have a deleterious effect on the future maintenance of Light-Sport Aircraft, with both fewer maintenance professionals overall and fewer professionals with specific interest and expertise in these types of aircraft. In proposing this change, the FAA has failed to provide a justification predicated on safety.

LSRMs cannot work on any other category of aircraft, owing to their unique training paradigm and the highly specific maintenance instructions required by ASTM standards in Light-Sport Aircraft. Any conflating of LSRM to traditional maintenance ratings is inappropriate.

Nevertheless, the finalization of this rule anticipates the potential for new aircraft to enter the market. These aircraft may have new features not previously permitted, such as retractable landing gear, controllable pitch propellers, and more legacy powerplants. The current LSRM training course that is offered today can be supplemented by additional modules appropriate to these new aircraft, components, and technologies. The LSRM would need to show completion of these course modules, which could be offered by the original training course provider, the aircraft or component manufacturer, or anyone equipped to offer this training before performing maintenance on applicable aircraft.

We further disagree with any notion of FAA acceptance of the LSRM course, which would be a change in policy from today's highly effective and efficient system for certifying LSRMs. As with many other aspects of the Light-Sport ecosystem, we favor adherence to industry and FAA standards by affirmation of the course provider. Any such self-declaration comes with FAA oversight and audit authority.

Finally, we believe that any exams related to the training course should continue to be the domain of the individual course curricula and associated policy. We do not support codifying acceptance of exams or prescribing their pass rates in the regulation, as this NPRM contemplates.

Minor Alterations to Light-Sport Aircraft

FAA Proposal

The FAA proposes to require that minor repairs and minor alterations of aircraft issued a special airworthiness certificate meet applicable design and performance requirements and allow authorized persons to perform minor repairs and minor alterations without obtaining authorization from the manufacturer or a person acceptable to the FAA.

Commenters' Response

The commenters agree with the proposal to allow minor repairs and minor alterations to Special Light-Sport Aircraft that are conducted by authorized persons that meet applicable design and performance requirements without manufacturer approval. By their very definition, minor repairs and minor alterations have no appreciable impact on safety and can be authorized with negligible risk. This proposal parallels requirements currently in place for Standard Category Aircraft (CAR3/Part 23), which do not require FAA authorization for minor repairs or minor alterations. It is appropriate that Special Light-Sport Aircraft should not require the equivalent manufacturer or FAA approval. The commenters also understand that to support these minor changes, guidance in the form of industry standards, as well as the potential for covering these topics as part of the LSRM training, will need to be developed to ensure those making these minor repairs and minor alterations have the appropriate information needed to ensure they can be accomplished safely.

The commenters do have concerns with the preamble's statement that minor alterations will need to meet the performance requirements of Part 43 as well as the applicable industry standard. Both Part 43 and industry standards are commonly used means of compliance, and it is, in our view, inappropriate to require both. Therefore, we suggest requiring either compliance with an industry standard (as specified, for example, in a manufacturer's maintenance manual) or compliance with the performance requirements of Part 43.

Major Alterations and Repairs to Light-Sport Aircraft

FAA Proposal

Add "repairs" to the regulatory language on major alterations in Special Light-Sport Aircraft.

Commenters' Response

The commenters agree with the proposed addition of "repairs" to this language. We would also encourage the Agency to make greater use of the "person acceptable to the FAA" clause in the rule. To our knowledge, this has seen limited use, primarily in the cases of major policy issues such as ADS-B equipage or unleaded fuel. We encourage using this method to allow greater third-party alterations and repairs to Light-Sport Aircraft when those alterations and repairs meet applicable standards.

Other Rule Changes

Contract Former Military Aircraft

FAA Proposal

Add "operating former military aircraft" as an experimental airworthiness certificate purpose under 14 CFR 21.191. This category would house aircraft operating under contract with the US

Armed Forces and would not affect historic former military aircraft flown for display ("warbirds") under 14 CFR 21.191(d).

Commenters' Response

Aircraft performing contract services with the military, which operate under Part 91 during transit and when on a public use contract, have long needed their own home in 14 CFR 21.191 that has a certification purpose unique to those operations. This proposal creates that home, and eliminates the need for these aircraft to be certificated in other experimental categories, such as exhibition.

Changes to 14 CFR 91.319(c)

FAA Proposal

Remove language on takeoff and landing from 14 CFR 91.319(c), concerning restrictions on experimental aircraft operating over densely populated areas. This will allow the Administrator to issue operating limitations that more broadly allow these operations in certain cases. The preamble contains extensive discussion of what operations may or may not be allowed in future policy.

Commenters' Response

The commenters agree that there is far more nuance to the authorization of flight over densely populated areas for experimental aircraft than is currently allowed by regulation, and we are fully supportive of the proposed change to 14 CFR 91.319(c). However, we are opposed to the preamble language that details the FAA's intended policy to administer this change. In particular, we object to the announced intent that plans-built aircraft and other types be excluded from this operating privilege, especially as current operating limitations for these types as written in FAA Order 8130.2J allow for certain flight over densely populated areas after the risks have been mitigated during Phase I flight testing.[9]

The appropriate venue for this conversation on relative risk is in the follow-on policymaking in documents such as FAA Order 8130.2. As the FAA notes in the preamble, these documents will be updated via a public process that invites comment. Announcing intent on future policy in this NPRM's preamble, while not binding, will inevitably be cited for decades to come.

The commenters agree that there are indeed aircraft that are appropriate to exclude from flight over densely populated areas, but that this discussion is technical and beyond the scope of this NPRM or our comments thereto.

Therefore, the commenters recommend removing statements from the preamble that suggest whether or not certain operations will be allowed, and references to specific classes of experimental aircraft.

[9] Order 8130.2J, Operating Limitation 55 (Page D-17)

Conclusion

This NPRM will bring untold benefits to the general aviation community. It will allow the Light-Sport category to reach its full potential. It will bring more manufacturers into the general aviation marketplace, spurring innovation and competitive development. It will allow more airmen to obtain and maintain Sport Pilot ratings. It will bring new professionals into general aviation through the Sport Pilot flight instructor and Light Sport Repairman Maintenance ratings. It will help the FAA modernize the aircraft certification landscape for the decades ahead.

With such a large rule our comments are naturally substantial, but make no mistake: we support this rule, and we applaud the FAA for their tireless work in getting us to this point. Many, many hours have gone into writing this NPRM, and responsiveness to industry and attention to detail are apparent.

The commenters urge the Agency to finalize this rule as expediently as possible, with due consideration to our feedback.

Respectfully,

Jack J. Pelton
CEO and Chairman of the Board
Experimental Aircraft Association

Mark Baker
President and CEO
Aircraft Owners and Pilots Association

Alan Stephens
Vice President, Regulatory Affairs
NATA

President and CEO
National Business Aviation Association

Appendix: Additional Recommendations and Considerations

The FAA's release of the MOSAIC NPRM and the subsequent discussions have led to several additional recommendations and considerations. MOSAIC focuses on the expansion of the Light-Sport category of aircraft and those aircraft issued Special and Experimental airworthiness certificates and, when implemented, will have significant benefit to the industry. The following are additional recommendations offered for consideration that would be of benefit. A number of these would fall within the scope of this rulemaking; others are offered for consideration as part of future rulemaking and policy changes.

Industry Recommendation: Sport Pilots Performing Preventive Maintenance

Allow holders of Sport Pilot Certificates to perform Preventive Maintenance on any aircraft that meets the definition of Light-Sport Aircraft, including those with Primary and Standard Airworthiness Certificates.

Discussion:

- Currently, the holder of a Sport Pilot Certificate may only perform preventive maintenance on an aircraft owned or operated by that pilot and issued a Special Airworthiness Certificate in the Light-Sport category
- 14 CFR Part 61 and the FAA's Airman Certification Standards for Private Pilots and Sport Pilots provide the same levels of training with regard to completing preventive maintenance on aircraft
- We have not seen an appreciable difference in the levels or types of preventive maintenance on S-LSA aircraft compared to aircraft with primary and standard airworthiness certificates that meet the definition of LSA

Industry Recommendation: Allow Existing Light-Sport Aircraft to Increase Gross Weight

Light-Sport aircraft are currently limited to 1320 lbs. The MOSAIC NPRM proposes to remove this limitation. A regulatory pathway should allow these aircraft manufacturers to increase the gross weight of existing in-service aircraft by utilizing the new standards under development when appropriate.

Discussion:

- A number of aircraft designs that have received Special Light-Sport Airworthiness Certificates since the introduction of the rule were designed and capable of flying at higher gross weights.
- Many of these same designs have demonstrated and received authorization to fly at higher weights by Civil Aviation Authorities in other countries
- ASTM is developing standards in support of the MOSAIC NPRM for larger, more capable Light-Sport Aircraft
- The pathway allowing manufacturers to increase gross weight for in-service aircraft should follow the self-declaration process to the accepted ASTM standards as the FAA utilizes for all Light-Sport.

Industry Recommendation: Realign the requirements to allow mechanics (Airframe and Powerplant) who do not have Inspection Authorizations to conduct Annual Inspections and return to service Level 1 and 2 aircraft that hold Standard Airworthiness Certificates.

14 CFR 91.409 requires that no person may operate an aircraft unless, within the preceding 12 calendar months, it has had an annual inspection and has been approved for return to service as authorized in Part 43. Part 43 specifies that this inspection must be completed by a mechanic with an Inspection Authorization (A&P, IA).

14 CFR 91.409 also requires that no person may operate an aircraft carrying any person for hire, and no person may give flight instruction for hire in an aircraft which that person provides unless, within the preceding 100 hours of time in service, the aircraft has received an annual or 100-hour inspection and been approved for return to service as authorized in Part 43. Part 43 specifies that inspection must be completed by a mechanic (A&P); no inspection authorization is required.

Discussion:

- The scope and detail of an Annual and 100-Hour Inspections are identical and are listed together in Part 43 Appendix D entitled, "Scope and Detail of Items (as Applicable to the Particular Aircraft) To Be Included in Annual and 100-Hour Inspections"
- This change should be applied to Level 1 & 2 aircraft flown for recreation and private transportation
- This could be accomplished either by changing the requirement from an "annual inspection" to a "condition inspection."
- This change would be a step in addressing general aviation's access to qualified maintenance professionals with no impact to the safe operation of these aircraft.

Industry Recommendation: Continue dialogue on a new special airworthiness certification category for formerly type-certificated aircraft

In remarks regarding MOSAIC at AirVenture 2019, the Acting Administrator referred to a notional proposal that was under consideration for the rule at the time. This proposal appeared similar in broad strokes to the "Primary Non-Commercial" category proposed in Appendix G of the 14 CFR Part 23 Reorganization Aviation Rulemaking Committee report (2013).

While this proposal was not included in the final NPRM, the commenters believe it has merit and wish to continue the conversation with the FAA and the industry.

Discussion:

- Experimental Amateur-Built aircraft have few restrictions on maintenance, modification, or alteration. This gives them, in exchange for appropriate operating limitations, access to the latest innovations in safety-enhancing technologies, as well as all possible options for maintainability.
- There is no equivalent maintenance option for a type-certificated aircraft, which must generally maintain a standard appropriate to all operations authorized by its type

certificate. This is despite the fact that many type-certificated aircraft owned by individuals are operated in a very similar manner to Experimental Amateur-Built aircraft.

- Maintainability in the legacy fleet is an ever-growing concern, and we feel that greater flexibility of maintenance, modification, and modernization of vintage aircraft will have a net safety benefit.
- Transport Canada has a similar regulation, with decades of safe operation to show for it.