Ref: GAMA 24-02

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

Subject: GAMA Comments to NPRM 23-10, Modernization of Special Airworthiness Certification (MOSAIC)

The General Aviation Manufacturers Association (GAMA) values the opportunity to provide review and comment on the notice of proposed rulemaking (NPRM) designated 23-10 and titled *Modernization of Special Airworthiness Certification* (Docket FAA-2023-1377), or "MOSAIC." GAMA is an international trade association representing over 150 of the world's leading manufacturers of general aviation airplanes, rotorcraft, and powered-lift aircraft and related engines, avionics, components and services. GAMA's members also operate repair stations, fixed based operations, pilot and maintenance training facilities and manage fleets of aircraft. We praise the Federal Aviation Administration (FAA) for this important initiative and believe our comments will strengthen the proposal and increase its benefit to aviation safety and the aviation community.

GAMA's membership manufactures a broad range of products that are certificated across the safety continuum of aviation products and operations to include part 21 special and normal airworthiness certification and type certification of part 23 normal category airplanes levels 1 through 4, part 25 transport category airplanes, part 27 normal category rotorcraft, part 29 transport category rotorcraft, part 33 aircraft engines, part 35 propellers, and special class powered-lift category electric vertical takeoff and landing (eVTOL) aircraft. The following comments provide support for and offer constructive feedback to the FAA as the agency works to finalize the MOSAIC rule proposals.

GAMA supports the key aspects of the MOSAIC proposal to increase the size, performance and scope of aircraft that can be flown by sport pilots and issuance of a special airworthiness certificate in the light-sport aircraft category with the objective of improving safety, functionality, innovation, and availability of small general aviation aircraft. However, there are areas of the proposal regarding new and complex design and expanded operations of light-sport aircraft which are not fully supported by operational safety data alone and require additional consideration and understanding on how FAA intends to implement with the appropriate mitigations for risk.

In addition, GAMA believes FAA could more fully realize the intended objectives and benefits of this proposal by applying a consistent safety continuum approach across all small aircraft airworthiness and certification processes. This proposal highlights the safety benefits that flow from owners and operators having options to migrate from an experimental aircraft to a light-sport aircraft which is positioned higher on the safety continuum and, therefore, meets higher aircraft certification requirements. It is essential that FAA also ensure that owners and operators continue to have economical options to migrate from experimental and light-sport aircraft to type-certificated aircraft which are higher on the safety continuum and meet higher aircraft certification requirements. GAMA recommends that the FAA more effectively apply the safety continuum, which serves as the primary rationale for the MOSAIC proposals, to the type certification process of part 23 small airplanes and part 27 rotorcraft to ensure a level of certitude in rigor and burden appropriate for low-risk small aircraft as FAA has determined is appropriate in this rulemaking and to better enable the manufacture of safe and economical small type-certificated aircraft.

General Aviation Manufacturers Association
HEADQUARTERS 1400 K Street NW, Suite 801 | Washington, DC 20005 USA | +1 202 393 1500 MAIN
EUROPEAN OFFICE Rue de la Loi 67/3 | 1040 Brussels Belgium | +32 (0) 2 550 39 00 MAIN

We also believe the agency must ensure that this proposal delivers on its potential to focus it's resources on areas of higher risk and safety and an effective and efficient type certification process. We recommend that FAA eliminate the proposal to apply prescriptive part 36 noise requirements to experimental and light-sport category aircraft and instead use the existing performance-based approaches for these types of aircraft to properly address noise such as through limitations and FAA accepted consensus standards. FAA should establish a clear pathway for manufacturers of current type certificated aircraft that meet the definition of a light-sport aircraft to have the option available to design, produce, and certificate newly manufactured models under part 22 for issuance of a special airworthiness certificate in the light-sport aircraft category. We also believe the FAA should begin the work with bilateral and other global aviation authorities to facilitate harmonization or efficient transferability of light-sport aircraft to gain further resource and safety benefits.

Comments

Section I provides GAMA's significant comments on the following aspects of the NPRM:

- Application of Part 36 Noise to experimental and Light-Sport Aircraft Category
- Need to Improve Part 23 Certification Process to Expand Safety Benefits of MOSAIC
- Expanded Sport Pilot Privileges
- Expanded Light-Sport Aircraft Category – Size (Maximum Weight and Stalling Speed)
- Expanded Light-Sport Aircraft Category – Certification of Additional Aircraft Classes to Include Rotorcraft and Powered-Lift
- Expanded Light-Sport Aircraft Category – Removal of Design Limitations (Maximum Speed, Fixed Gear & Propeller) and Operating Limitations (night, aerial work, maximum occupancy)
- Expanded Light Sport Aircraft Category – Safety Case
- Enabling Expanded Light Sport Aircraft Category for Current Aircraft
- Simplified Flight Controls
- Experimental Airworthiness Certificates: Operational Limitations
- Restricted Category and Special Use Operations
- Safety Continuum - Need to Ensure Appropriate and Consistent Implementation
- Export of Light-Sport Category Aircraft & Consideration of Primary Category

Section II provides GAMA's section-by-section comments with detailed discussion and recommendations for the proposed regulatory text which addresses several areas of the NPRM including: light-sport aircraft, expansion to rotorcraft and powered-lift, simplified flight controls, restricted category agricultural aircraft, and experimental airworthiness certificates.

Section III provides excerpts from the GA industry association comments jointly submitted by EAA, AOPA, NATA, and NBAA and provides GAMA's support.

Conclusion

GAMA appreciates FAA's consideration of the enclosed comments which represents general consensus agreement across a very broad range of general aviation manufacturers and aviation service organizations and believe that these will strengthen the proposal and increase its benefit to aviation safety and the aviation community.

Respectfully,

Peter J. Bunce
President & CEO
General Aviation Manufacturers Association (GAMA)

Enclosures: Section I, Section II, and Section III comments

==========

SECTION I: SIGNIFICANT COMMENTS

==========

Application of Part 36 Noise to experimental and Light-Sport Aircraft Category

- **GAMA opposes** FAA's proposal to add new FAR part 36 noise requirements to…
  - Experimental aircraft. By definition these aircraft are not in compliance with published requirements and therefore all requirements and limitations necessary are defined within the experimental airworthiness certificate.
  - Light-Sport Aircraft Category. It is completely contrary to the entire process for part 22 LSA aircraft to apply part 36 which establishes prescriptive requirements for noise levels and measurement procedures in lieu of means of compliance established in accordance with an FAA accepted consensus standard and company declaration of compliance.
- Overly constrictive noise certification requirements, such as the application of part 36, can lead to a detrimental decrease in safety-enhancing aircraft performance.
- Part 36 prescribes prescriptive procedural requirements which requires direct FAA involvement by technical specialists which are already significantly limited resources that our member companies report are not able to effectively support current part 36 activities for type certificated aircraft programs. This problem is exacerbated in proposed section 36.1501, which would require that all procedures, weights, configurations and other information or data employed for obtaining the certified noise levels prescribed by this part, including equivalent procedures used for flight, testing, and analysis, must be developed by the applicant, and approved by FAA.
- Although proposed 36.0(c) states that non-certificated aircraft may demonstrate compliance using an FAA approved consensus standard, this standard would have to prescribe measurement and test procedures and noise levels equivalent to part 36 and approved by FAA for each aircraft airworthiness certificate per proposed section 36.1501 which does not provide the flexibility and level of rigor and burden consistent with the safety continuum and this NPRM.
- In addition, section 36.0(c) requires FAA approval of a consensus standard noise certification which is contrary to proposed section 22.100(a)(7) that consensus standards for compliance with part 22 light-sport aircraft be accepted by the FAA.
- **GAMA recommends** that FAA remove part 36 noise requirements from proposed section 21.17 and section 22.175 for light-sport aircraft and section 21.191 for experimental aircraft. If FAA determines a noise standard is necessary for LSA, then it should be established consistent with all other applicable part 22 Design, Production and Airworthiness Requirements for Non-Type Certificated Aircraft with means of compliance established in accordance with an FAA accepted consensus standard for both noise levels and procedures and a company declaration of compliance conducted in accordance with an FAA accepted quality assurance system.

Need to Improve Part 23 Certification Process to Expand Safety Benefits of MOSAIC

- The FAA's rationale and safety case for expanding light-sport aircraft in this NPRM are equally important to be applied to type certification processes for Part 23 airplanes in order to better realize the intended objectives and safety benefits.
- The FAA considers that the successful safety record of light-sport category aircraft provides support for expanding the size and scope - *"The FAA intends for these expansions to increase safety by encouraging aircraft owners, who may be deciding between and experimental aircraft or a light-sport category aircraft, to choose aircraft higher on the safety continuum and, therefore, meet higher aircraft certification requirements."*
- To further expand the intended safety benefits of this proposal, it is essential that FAA also further enable the manufacture of safe and economical small part 23 type certificated airplanes so that aircraft owners are encouraged "to choose aircraft higher on the safety continuum and, therefore, meet higher aircraft certification requirements."

  - Part 23 Amendment 64 is hugely successful in enabling innovation and safety enhancements in GA airplanes through the rewrite of part 23 to performance-based airworthiness requirements and acceptance of consensus standards for means of compliance – which is largely what FAA is now proposing for expanding the light-sport aircraft category and the establishment of a new Part 22
  - Application of the safety continuum to type certification processes for small airplanes has not yet been addressed. Currently, airplane manufacturers experience the same high level of rigor and FAA involvement in type certification processes as larger, higher risk aircraft across all part 23 airplanes with significant impact on predictability, schedule and overall burden and corresponding cost.
  - Consistent with this proposal, FAA should also consider the safety record of part 23 type certificated airplanes and apply the same objectives and rationale to improve application of safety continuum to part 23 airplanes, with particular attention to part 23 airplanes and part 27 rotorcraft with a comparable size and performance as FAA is proposing for the expansion of light-sport category aircraft.
  - FAA must ensure the safety benefit of type certificated airplanes are also expanded and made available as options for aircraft owners "to choose aircraft higher on the safety continuum and, therefore, meet higher aircraft certification requirements.".
- **GAMA recommends** that FAA launch a targeted initiative to review application of the safety continuum to type certification processes for part 23 Level 1, 2, 3 and 4 airplanes to better align the level of rigor and burden to achieve the same safety objectives of this proposal. The FAA should ensure an appropriate level of certitude in the type certification process for part 23 airplanes in which FAA involvement focuses only on areas of high-risk with maximum reliance and acceptance of the applicant compliance safety assurance processes, statements of compliance and existing delegation system. This activity would not require rulemaking.

Expanded Sport Pilot Privileges

- FAA proposes to expand sport pilot privileges in section 61.316 to increase the size, performance and scope of aircraft that can be operated by a sport pilot, to include:
  - from 45 to 54 knots CAS maximum stalling or minimum steady flight speed without the use of lift-enhancing devices (VS1) ;
  - from 1,320 lbs MTOW to approximately 3,000 lbs based on max stall speed;
  - from 125 knot to 250 knot max speed;
  - from 2 to 4 seat maximum capacity (but retain operational limitation to carry one passenger); and
  - retractable gear and controllable pitch propeller with the required endorsement; and
  - allow for night operations.
- This would enable current aircraft owners or operators with a private pilot's license to be able to exercise sport-pilot privileges to continue operating their aircraft.
- **GAMA supports** the MOSAIC proposal to expand sport pilot privileges to increase the size, performance and scope of aircraft that can be operated by a sport pilot.
- **GAMA recommends** that the maximum stall speed be further increased to 58 knots CAS to better capture a broad range of specific airplane makes and models with very similar flight characteristics such as the Piper Archer which is just above 57 knots. This stall speed remains below that of primary category consistent with the safety continuum.

Expanded Light-Sport Aircraft Category - Size (Maximum Weight and Stalling Speed)

The FAA presents several proposals to increase the size, performance, and scope of LSA to improve both the safety and functionality and increase the suitability for flight training, limited aerial work, and personal travel. The FAA states that the successful safety record of LSA validates certification

requirements established in the 2004 final rule and provides support for expanding the size of certification for light-sport category airplanes.

The most significant proposed change to the expansion of light-sport aircraft category eligibility in section 22.100 is in the size of a light-sport category fixed-wing airplane. The FAA proposes to increase the maximum stall speed from 45 knots to 54 knots, which FAA has determined would permit airplane designs up to approximately 3,000lbs due to the correlation between stall speed and aircraft weight. This is a significant increase from the current maximum LSA weight limit of 1,320lbs (1,430lbs for amphibious airplanes). The preamble states that this would provide manufacturers with opportunities to incorporate additional safety-enhancing designs and equipment, design airframes that are more rugged for the flight-training environment, increase fuel load and aircraft range, allow for greater cabin size for occupant size and comfort, and improve aircraft handling in gusts, turbulence and crosswinds which is supported by the granting of 11 exemptions for increased weight.

GAMA supports the FAA's proposal to increase the size of light-sport aircraft airplanes and allowing for an increase in maximum takeoff weight as this is the most significant constraint on current LSA and such an increase in size would enable safety enhancement and robustness of design to support intended operations. We agree that the weight limitations in the definition of light-sport aircraft preclude many design and safety features and the ability to produce more robust airplanes. GAMA supports FAA's proposal to remove a weight based limitation for light-sport airplanes and instead use a performance based stalling speed which indirectly limits maximum weight.

GAMA Recommends that FAA consider an increase in the maximum stall speed for light-sport aircraft eligibility in section 22.100 for an airplane to 58 knots CAS to align with the recommended increase in stall speed for what airplane a sport pilot can operate. This provides consistency across these two areas which have always been understood as being the same.

We recognize that an increased stall speed allows for an increase in maximum weight. Going to basic lift coefficient aerodynamics, lift is proportional to the square of the speed, which means weight is proportional to the square of the speed. As calculated below, a stalling speed of 58 knots would permit airplane designs up to approximately 3,325 lbs which we believe continues to fall within the safety case presented by FAA in this proposal.

(Vs2 / Vs1)^2 * W1 = W2 ((58/56)^2)(3100) = 3325 lb

<u>Expanded Light-Sport Aircraft Category – Certification of Additional Aircraft Classes to Include Rotorcraft and Powered-Lift</u>

GAMA supports the MOSAIC proposal to increase the scope of LSA aircraft that can be issued a special airworthiness certificate to include rotorcraft and powered lift as we agree that the opportunity and benefits of the light-sport category FAA explains in the preamble should be made available to other types of GA aircraft. FAA specifically requested comments on appropriate parameters to limit the size of light-sport category rotorcraft and powered lift.

GAMA recommends that FAA consider a maximum weight of 2,700lbs for rotorcraft which is consistent with primary category rotorcraft, and a maximum weight of 3,375lbs for powered-lift which reflects FAA accommodation for special features in other primary aircraft categories.

GAMA supports the FAA's recognition of current rulemaking for the powered-lift Special Federal Aviation Regulations which proposes "*alternate eligibility requirements to safely certificate initial groups of powered-lift pilots, as well as determine which operating rules apply to powered-lift on a temporary basis to enable the FAA to gather additional information and determine the most appropriate permanent rulemaking path for these aircraft.* (NPRM 23-8)" In particular, that "*The FAA also chose not to consider powered lift privileges for sport pilots, given the complexity and ongoing development of those aircraft*

designs and associated pilot certification and operational rules that the FAA is considering. However, the FAA expects that future rulemaking may consider these aircraft and associated operations if they can fit within the constraints of sport pilot operations and aircraft. (Federal register page 47657)"

GAMA recommends that FAA's disposition of comments to the MOSAIC NPRM and determination of the final rule should seek consistency with the promulgation of the powered-lift SFAR final rule as these establish the baseline requirements. The MOSAIC rulemaking and comments should not have any impact and bearing on the FAA's work to finalize the disposition of comments to the powered-lift SFAR and process to publish the final rule.

Expanded Light-Sport Aircraft Category– Removal of Design Limitations (Maximum Speed, Fixed Gear & Propeller) and Operating Limitations (night, aerial work, maximum occupancy)

- FAA proposes to significantly expand the performance and operation of light-sport aircraft by removing design and operational limitations, which would allow:
    - increase maximum speed limitation from 125 to 250 knots by removing the speed limitation (which thereby allows higher performance engines);
    - retractable landing gear by removing fixed gear limitation;
    - controllable pitch propeller by removing fixed or ground adjustable propeller limitation;
    - engines and motors by removing single reciprocating engine limitation;
    - increase maximum seating capacity limitation for airplane from 2 to 4 persons;
    - expand type of aircraft to include rotorcraft and powered-lift; and
    - expanded operations for aerial work and night operations
    - expanded operations due to increased utility supporting the use of LSA for transportation
- Each area of expansion through the removal of design limitations carries with it a concomitant increase in design complexity and therefore safety assurance design compliance and production conformity risk.
- Each area of expanded and increased operations is also increased risk which is proposed in conjunction with an increase in the maximum number of occupants exposed to such risks.
- The FAA states in the preamble that when removing limitations, "The FAA recognizes that this is a balancing act—where the risk is increased due to greater capability in one area, mitigations may be required from the other areas."
    - In recognition of the increased risk in expanded size, scope, complexity and operation of LSA, FAA is proposing additional mitigations through an increase in the robustness of safety assurance processes and oversight of light-sport aircraft category manufacturers through the establishment of new requirements to include section 22.185, regarding a quality assurance system for design and production; section 22.190, regarding findings of compliance by trained compliance staff and a statement of compliance to FAA.
- **GAMA supports** the proposal to increase the size, performance and scope of aircraft that can be issued a special airworthiness certificate in the light-sport aircraft category with the objective of improving safety, functionality, innovation, and availability of small general aviation aircraft. However, when all the proposals to increase size and remove or reduce limitations are taken together, there are areas regarding new and complex design and operation of light-sport aircraft that are not fully supported by current operational safety data and require additional consideration and understanding on how FAA intends to implement with the appropriate mitigations for risk. The comments and recommendation in the next section regarding the safety case provide inputs from across a broad range of GAMA member companies for FAA consideration.

Expanded Light Sport Aircraft Category – Safety Case

- The FAA states that since 2011 the LSA fatal accident rates are between experimental and normal category aircraft, validating the rigor of certification requirements and supporting proposals described

in this NPRM for **modest** expansions of eligibility [emphasis added] for certification of light-sport category aircraft.

- Some companies commented that the safety record of historical LSA operations with simple, 2-seat, recreational only airplanes is insufficient operational safety data by itself to support the broad range of FAA's proposed expansion to LSA across multiple areas at the same time to include size, performance, complexity, and increased high volume operations
- FAA states in the NPRM preamble that it has determined that the safety record of LSA, designed and operated consistent with the 2004 final rule, in addition to improved design and production assurance, has justified the expansion of complexity of LSA aircraft. GAMA can only assume that the FAA has determined that this expansion aligns with the safety continuum and the establishment of a minimum level of safety appropriate for these aircraft and operations even though safety data for the proposed expansion of operations of aircraft with the proposed increase in complexity has not yet been proven.
- Some companies commented that there are areas of the proposal regarding new and complex design and high-volume operations of LSA which introduce new risks and as a result these elements require additional consideration and understanding of how FAA intends to implement them with appropriate mitigations. It would not be appropriate for FAA to introduce additional risks through the expansion of LSA without also ensuring the necessary risk mitigations.
- GAMA member companies have provided inputs on various mitigations that could be considered by FAA but there is not consensus. These include whether:
  - the LSA expansion proposals and the additional manufacturer requirements proposed in part 22 together contain an acceptable level of mitigations commensurate with the increased level of risk;
  - to restore or change any of the proposed removal of limits;
  - to introduce new mitigations;
  - to limit the risk exposure to fewer persons consistent with the safety continuum (i.e. retain the current 2-person limit for LSA); or
  - to better balance the risks in one area with mitigations in another area.

- **GAMA Recommends** that FAA conduct a more detailed evaluation of safety assurance risks of design compliance and production conformance for each aspect of the proposed increase in the size, performance, capability, and operation relative to LSA operational data--and that FAA determine whether any limitations or additional requirements are appropriate in the interest of safety. Member companies offered various concepts and proposals on approaches FAA could consider, but there is not consensus across GAMA's membership. Potential considerations include:
  - A two-tier concept of LSA in which proven, conventional "simple to design and simple to build" has no limitations and a complex or high-risk design or operation that is subject to certain limitations. These limitations could be in the design to reduce complexity such imposing a max operating speed of 120 or 180 knots, or in occupancy to 2 seats to reduce fatality risk; or in operations by prohibiting high-volume operations such as aerial work, flight training, IMC, night, etc.
  - FAA could implement additional risk mitigations deemed necessary in the Part 22 rule or through FAA acceptance of the respective consensus standards which includes appropriate design limitations or mitigations based on aircraft complexity or operation or seating capacity consistent with Part 23 level 1/2. This approach would allow FAA to take operational experience into account to make appropriate changes without having to wait for future rulemaking.
  - The FAA might consider establishing criteria for high-risk design features in which a higher level of certitude robustness is necessary in the interest of safety which could be addressed through the consensus standard for a design & production quality system. Historically this has been done based on weight, occupancy, and complexity. Considering the FAA's proposal to expand or remove all limitations to the size and performance of LSA, there can be a significant increase in complexity and technologies with limited experience which impacts

safety assurance of design compliance and production conformity. For LSA, FAA could consider levels of rigor in safety assurance processes and/or design standards for "simple" LSA versus "complex" LSA or a "recreational" LSA versus a "high volume operations" LSA for training, aerial work and transportation.

Expanded Light Sport Aircraft Category – Enabling for Current Aircraft

FAA proposes a significant expansion to the size, scope, performance, operations and utility of light-sport aircraft which overlaps with many existing aircraft currently type certificated normal category to part 23 airplane or part 27 rotorcraft. To ensure a level playing field and opportunity for manufacturers of current aircraft to also provide the safety and innovation benefits of this proposal to owner operators, FAA should provide a clear pathway for newly manufactured models (i.e. derivative) of current Part 23 and 27 type certificated aircraft that meet the definition of a light-sport aircraft to be able to be modified, improved, produced and certificated under part 22. This will provide manufacturers with the option to use the increased flexibility and reduced burden of the light-sport aircraft category and part 22 to bring additional innovation and safety enhancements to the market.

GAMA recommends that FAA establish a clear pathway with provisions for manufacturers of current type certificated aircraft that meet the definition of a light-sport aircraft to have the option available to design, produce, and certificate newly manufactured models (i.e. derivative) under part 22 and issued a special airworthiness certificate in the light-sport aircraft category.

Simplified Flight Controls

GAMA supports FAA's proposal to establish criteria for simplified flight controls which recognizes that rapid advances are occurring in aircraft automation and flight control technology with pilot interfaces and flight controls that do not resemble those found in traditional aircraft cockpits. As stated in the preamble, these aircraft have highly automated systems for controlling things such as speed, aircraft configuration and flight path while simultaneously providing protection from aerodynamic hazards such as asymmetric thrust and excessive structural loading. FAA's proposal would permit an aircraft that meets certain criteria to be designated by the manufacturer as having simplified flight controls. This would facilitate the development of these important safety innovations and technologies by providing a certification path. This enables clear recognition of an aircraft's safety capability so that it can be appropriately considered for flight training, pilot privileges and operations.

FAA's proposal for simplified flight controls is consistent with concepts discussed in a GAMA May 2019 whitepaper on "A Rational Construct for Simplified Vehicle Operations" that has been discussed across industry, FAA and EASA and provides one of the first practical applications in aviation safety regulation. However, GAMA believes the specific regulatory text proposed in section 22.180 may be overly prescriptive in terms of technology assumptions and focuses on minimum functionality rather than establishing a performance-based safety objective.

GAMA recommends in the section-by-section comments, proposed text for less prescriptive criteria for simplified flight controls that is more performance based and provides improved flexibility in terms of where technologies may evolve and the opportunity for future advancements.

FAA proposes to recognize the capability of a light-sport aircraft designated as having simplified flight controls by allowing a sport pilot to operate a LSA rotorcraft with simplified flight controls. GAMA supports this proposal. However, the FAA does not extend the same recognition and ability for a sport pilot to be able to operate a powered-lift aircraft designated as having simplified flight controls. FAA states that this is based on the novelty of these aircraft rather than a performance-based justification and proposes to revisit and possibly remove this limitation in future rulemaking. GAMA believes the

capability of the technology and the ease and safety of pilot operation of an aircraft with simplified flight controls is very comparable between a light-sport rotorcraft and powered-lift.

GAMA recommends that the FAA allow a sport pilot to operate a light-sport powered-lift that has been designated as having simplified flight controls consistent with the proposal for light-sport rotorcraft. Simplified flight control capability provides an equal level of mitigation and level of safety for the operation of a rotorcraft and powered-lift. FAA continues to have the role of determining when the detailed design and means of compliance is adequately understood and ready for application in helicopter and powered-lift through acceptance of the respective consensus standard(s).

Experimental Airworthiness Certificates: Operational Limitations

GAMA supports the FAA's proposal in 91.319(c) for granting operating limitations to particular aircraft holding experimental airworthiness certificates to conduct operations over densely populated areas or in congested airways. GAMA recognizes that this is a significantly beneficial change to the regulations and for aircraft manufacturers who issue many experimental licenses each year. FAA states that the considerations for accepting those limitations must include an assessment that the airplane be of "proven design" and "that demonstrate significant safety attributes and records for continued operational safety". GAMA believes that FAA should also consider manufacturers and organizations having significant experience with airplane design, certification, flight test, production, flight ops, and maintenance that have procedures in place to assess and address the safety of new designs in flight test and demonstration

GAMA recommends in the section-by-section comments that FAA should be able to recognize the safety pedigree of experienced organizations and organizational capabilities to support the assessment of experimental aircraft and consideration for accepting appropriate operating limitations.

Restricted Category and Special Use Operations

GAMA supports the FAA's effort to clarify section 21.25 for restricted category for special purpose operations to include former military aircraft, agricultural operations, and others. Specifically, GAMA supports the FAA's effort to clarify section 21.25(a)(2) regarding type certificates of former military aircraft. With their FAA type certificate pedigree, these aircraft would have a clearer path to a restricted category type certificate than an aircraft developed exclusively for the military. Further, GAMA supports the FAA's proposal in section 21.25(b), to codify special purpose operations that have traditionally been granted under the catchall regulation of section 21.25(b)(7).

GAMA recommends in our section-by-section comments and requests additional information to clarify some potential implementation issues with restricted category agricultural aircraft that need to be addressed and/or understood.

Safety Continuum - Need to Ensure Appropriate and Consistent Implementation

As stated in the preamble, the FAA bases the rigor of certification requirements and operational limitations on a safety continuum that assesses the exposure of the public to risk for each aircraft and operation; as the risk increases due to increased operating privileges and aircraft capability, the requirements and corresponding rigor of requirements and procedures for certification increase. GAMA and our member companies partner with FAA in the development and application of the safety continuum through the promulgation of appropriate regulations, policy and guidance for the design, production, certification, maintenance, training, and operation of general aviation aircraft.

The FAA has been working over the past couple of decades to incorporate the safety continuum philosophy for the lighter end of general aviation in order to encourage safety enhancements, incorporate newer technologies, reduce costs, and improve FAA resource efficiencies, among others. While doing so, the FAA has promoted and leveraged use of performance-based rules to offer forward looking and flexible rules to foster a more efficient means to keep pace with innovation and growth of the industry. In parallel, the FAA has supported the development of industry consensus standards that offer the means of compliance to meet the performance-based rules.

GAMA Recommends that with the regulatory structure and flexibility of consensus standards now in place, it is important that the FAA develop a safety continuum policy and corresponding guidance and training in order to fully implement the intended principles and realize the full potential safety benefits. FAA should develop policy and guidance that further defines the application of the safety continuum and provide their workforce with appropriate understanding and KSAs to apply an appropriate level of rigor and involvement across the entire general aviation product spectrum.

Export of Light-Sport Category Aircraft & Consideration of Primary Category

It is important that there be a pathway for U.S. light-sport aircraft category manufacturers to be able to efficiently export their aircraft to provide global market opportunities and ensure a level playing field with foreign manufacturers that are able to efficiently import comparable aircraft into the U.S.

GAMA Recommends that FAA consider options to facilitate global acceptance and export of U.S. light-sport aircraft and begin the work with bilateral and other global aviation authorities to facilitate harmonization or efficient transferability.

Primary Category - FAA's Modernization of Special Airworthiness Certification (MOSAIC) proposal does not address primary category special airworthiness certificates (21.184) or type certificates (21.24). GAMA understands that a recommendation to consider changes to primary category is outside the scope of this rulemaking, but offers the following for FAA consideration of a future rulemaking.

- There has been very limited industry use of primary category.
- However, the recent FAA certification of the Icon A5 in primary category highlights the commercial importance of being able to access international markets and that primary category offers a potential pathway for light-sport aircraft designed to part 22 and ASTM F37 means of compliance standards using an FAA accepted quality assurance system for compliance.
- In addition, FAA's proposed expansion in the size, type and performance of light-sport aircraft in this rulemaking provides capabilities for these aircraft that are greater than currently allowed for primary category which is intended to be a higher level of certification. This creates a significant disconnect in the safety continuum between light-sport aircraft category, primary category aircraft and normal category part 23 Level 1 and 2 airplanes.
- **GAMA recommends** that FAA consider a future initiative to update requirements and procedures for primary category design, production and special airworthiness certification to appropriately align with the proposed light-sport aircraft category (including part 22 and ASTM F37 standards) and normal category part 23 (including ASTM F44 standards). This should include consideration of primary category potentially serving as a pathway for simplified type certification of LSA to facilitate global acceptance and export, but may also include consideration of whether primary category is necessary considering the latest amendments to light-sport aircraft category as proposed and Part 23 amendment 64.

==========

SECTION II: SECTION by SECTION COMMENTS

==========

Requests for Regulatory Changes

§ 1.1 General Definitions

NPRM Proposed Text

Consensus standard means any industry-developed standard that applies to aircraft design, operation, production, maintenance, or airworthiness, which—

(1) Has been adopted and promulgated by a standards-producing organization under procedures which provide an opportunity for input by persons interested and affected by the scope or provisions of the standard;

(2) Has been reached through substantial agreement on its adoption; and

(3) Has been accepted as a consensus standard by the FAA.

Federal Register page 47656 - 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 to be understood in the context of 14CFR... 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.

Comment/Concern

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.), parts and processes utilized throughout design and production to include certification processes, quality systems, continued operational safety programs, etc. Examples of standards in use include ASTM, RTCA, SAE, MilSpec, and ISO. We are concerned that an attempt to develop and promulgate a single definition in FAA regulation that applies across the entire industry may unintentionally negatively impact many of the ways consensus standards are used by industry and incorporated into meeting FAA requirements. 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.

For example, we disagree with FAA's statement that *"After a consensus standard has been adopted by a consensus standards body, the FAA would review the standard for acceptance. The FAA typically advises the public of the agency's acceptance of these consensus standards through a notice of acceptance which is published in the Federal Register."* This statement is primarily only applicable to specific FAA activities such as type certification of part 23 normal category airplanes per section 23.2010 accepted means of compliance; and special airworthiness certification of light-sport aircraft per section 21.190. The vast majority of consensus standards used to support aircraft design, production, operations and maintenance are recognized and accepted by FAA through incorporation in approved type design, FAA issued policy and guidance, and FAA approved procedures and documents such as manufacturer instructions for continued airworthiness and production quality system.

As noted by the FAA, "consensus standards" is a widely understood term with many uses throughout the industry. Therefore, the definition of consensus standards should not be defined in FAA regulation and continue to have broad applicability intended for specific applications.

Recommendation/Request
In recognition of the broad spectrum of use of consensus standards across aviation design, production, operations, maintenance, certification, etc, and to ensure that there are no unintended negative consequences, GAMA recommends that the definition of "consensus standard" be removed from Part 1 regulations and not further expanded as proposed.

§ 21.25 Issue of type certificate: restricted category aircraft

NPRM Proposed Text
(a)(2)(i) Has been manufactured in accordance with the requirements of, and accepted for use by, the U.S. Armed Forces;

Comment/Concern
GAMA 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 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 would 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.

Request
To include these aircraft, GAMA requests 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;"

NPRM Proposed Text
21.25(b) Restricted category aircraft can be approved for:…

Comment/Concern
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.

1. 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). 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 specific the new 21.25(b) special purposes? If the TCDS is changed, the Airworthiness Certificates issued for these aircraft would no longer match.

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

3. 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 14CFR 137.3.

§ 21.190 Issue of a special airworthiness certificate for a light-sport category aircraft.

22.190(a) Purpose
22.190(b) Eligibility
21.190(c) Application for special airworthiness certificate in the light-sport category
21.190(d) Manufacturer's statement of compliance

NPRM Proposed Text
FAA states in 21.190(a) that this section prescribes the requirements for FAA issuance of a special airworthiness certificate in the light-sport category to operate an aircraft. 21.190(b) states that eligible aircraft must meet the applicable requirements of Section 22.100. And 21.190(c) states that an applicant for a special airworthiness certificate in the light-sport category must provide FAA with:

- (c)(1) manufacturers statement of compliance
- (c)(2) pilot's operating handbook that includes the traditional POH/AFM type of information for operating instructions and limitations, but also additional information to include
    - (ii) A flight training supplement to enable safe operation of the aircraft within the intended flight envelope under all foreseeable conditions
- (c)(3) A maintenance and inspection program containing procedures necessary to ensure continued safe operation of the aircraft

Comment/Concern
The applicant to FAA for a 21.190 special airworthiness certificate is the aircraft owner/operator who is most commonly the person that purchased a light-sport aircraft from the manufacturer. There is a disconnect in the regulatory requirements applicable to the manufacturer of an LSA who provides an eligible aircraft per 21.190(b) that meets the applicable requirements of section 22.100 and the requirements applicable to the owner/operator for application of a special airworthiness certificate per 21.190(c) to provide several manufacturer documents such as a statement of compliance, pilot's operating handbook, flight training supplement, and maintenance and inspection program which are not specific requirements in part 22. The design and airworthiness requirements for all other categories of aircraft require the manufacturer to develop an airplane flight manual and instructions for continued airworthiness. In addition, the airworthiness requirements for aircraft engine and propeller also require the manufacture to develop instructions for continued airworthiness. For example:

- Normal category airplane and rotorcraft:
    - 23.1529 Instructions for continued airworthiness
    - 23.2620 Airplane Flight Manual
    - 27.1529 Instructions for Continued Airworthiness
    - §§ 27.1581 - 27.1589 Rotorcraft Flight Manual and Approved Manual Material
- Aircraft Engine: §33.4 Instructions for Continued Airworthiness.

- Propellers: § 35.4 Instructions for Continued Airworthiness.
- Primary category aircraft issuance of type certificate §21.24:
    - (2)(ii) The flight manual required by § 21.5(b), including any information required to be furnished by the applicable airworthiness standards;
    - (2)(iii) Instructions for continued airworthiness in accordance with § 21.50(b); and

FAA's proposed requirements for the issue of special airworthiness certificate for light-sport category aircraft makes it clear that FAA's intent is to require the manufacturer of a light-sport aircraft to produce certain documents necessary for the airworthiness and safety of the aircraft consistent with the airworthiness safety requirements for all type-certificated aircraft, engines and propellers. FAA states that it is eliminating the definition of light-sport aircraft from the Section 1.1 definitions and instead specify separate requirements for aircraft, pilot, and repairman certification and better align with the location of such requirements for other categories of aircraft. It is appropriate that these documents necessary for the safety and issuance of a special airworthiness certificate for light-sport category aircraft be in part 22 to clearly establish the airworthiness requirement for the manufacturer to produce them. In addition, clarifying that these documents and the information they contain are airworthiness requirements in part 22 will support FAA's continuing continued operational safety and compliance oversight activities.

Recommendation/Request
GAMA recommends that documents required for the issue of a special airworthiness certificate for light-sport aircraft prescribed in section 21.190 that must be produced by the LSA manufacturer be prescribed and defined in part 22 design, production and airworthiness requirements Subpart B for light-sport category aircraft to include:

- manufacturers statement of compliance,
- pilot's operating handbook, and
- maintenance and inspection program

NPRM Proposed Text
21.190(d)(9)(iii)
The FAA seeks comment regarding whether manufacturers who are discontinuing their continued operational safety program due to discontinuance of manufacturing operations should be required to send the design information regarding the affected aircraft to the FAA prior to discontinuing their continued operational safety program, so that the FAA can better issue airworthiness directives if an unsafe condition is discovered later.

Comment/Concern
There are multiple reasons that a LSA manufacturer may choose to discontinue their manufacturing operations and continued operational safety program to include sale/transfer to another owner, business decisions, and insolvency. The LSA design data holder is responsible for meeting the responsibilities of part 22 and the preservation of LSA intellectual property (IP) data until the data/product is no longer supported or abandoned. However, there should be clear provisions that allow for the transfer of LSA IP acquired by a new owner and opportunity to fulfil the responsibilities of part 22. In the case of a new owner, the design information should not be required to be sent to the FAA.

Recommendation/Request
GAMA recommends that FAA review current policy and guidance such as Order 8110.120, Processing Surrendered, Abandoned, and Historical Aircraft Type Certificates as a model in establishing requirements for the surrender of LSA IP design information to FAA and an appropriate process of due diligence before the release of that LSA data. GAMA requests that the FAA clarify that they are not establishing a completely new and different process for LSA. Current policy for transfer of design data

and/or amended design data for FAA Type Certificated Products should be applied in a similar way for Light Sport Aircraft. In the case of a design holder transferring responsibility and ownership of design data to a new design holder, the design data does not need to be sent to the FAA (as in the case for abandoned design data).

If the design information is abandoned, and if the FAA is to take ownership of the design information, GAMA requests that the FAA ensure confidentiality of that data unless an unsafe airworthiness condition exists in which an AD warrants applicable information is needed to correct the unsafe condition.

§ 22.100 Eligibility

NPRM Proposed Text

22.100(a)(3) *have a maximum stalling speed or minimum steady flight speed, without the use of lift-enhancing devices (Vs1) at the aircraft's maximum certificated takeoff weight and most critical center of gravity of 54 knots CAS for an airplane…*

Comment/Concern

GAMA supports the FAA's proposal to increase the size of light-sport aircraft airplanes and allowing for an increase in maximum takeoff weight as this is the most significant constraint on current LSA and such an increase in size would enable safety enhancement and robustness of design to support intended operations. We agree that the weight limitations in the definition of light-sport aircraft preclude many design and safety features and the ability to produce more robust airplanes. GAMA supports FAA's proposal to remove a weight-based limitation for light-sport airplanes and instead use a performance based stalling speed which indirectly limits maximum weight.

Recommendation/Request

GAMA Recommends that FAA consider an increase in the maximum stall speed for light-sport aircraft eligibility in section 22.100 for an airplane to 58 knots CAS to align with the recommended increase in stall speed for what airplane a sport pilot can operate. This remains below the maximum stall speed for primary category airplane which is a higher level of safety in which FAA provided safety justification. In addition, this provides consistency across LSA and which airplane a sport pilot is permitted to fly, which has always been understood as being the same.

We recognize that an increased stall speed allows for an increase in maximum weight. Going to basic lift coefficient aerodynamics, lift is proportional to the square of the speed, which means weight is proportional to the square of the speed. As calculated below, a stalling speed of 58 knots would permit airplane designs up to approximately 3,325 lbs which we believe continues to fall within the safety case presented by FAA in this proposal.

(Vs2 / Vs1)^2 * W1 = W2 ((58/56)^2)(3100) = 3325 lb

22.100(a) Eligibility for Additional Aircraft Classes to Include Rotorcraft and Powered-Lift

NPRM Proposed Text

Federal Register Page 47659 - *The FAA specifically requests comments on appropriate parameters to limit the weight of lightsport category rotorcraft and powered lift.*

Comment

GAMA supports the MOSAIC proposal to increase the scope of LSA aircraft that can be issued a special airworthiness certificate to include rotorcraft and powered lift as we agree that the opportunity and benefits of the light-sport category FAA explains in the preamble should be made available to other types of GA aircraft. FAA specifically requested comments on appropriate parameters to limit the size of light-sport category rotorcraft and powered lift. GAMA believes the FAA discussion and rationale in the preamble of the NPRM and final rule for primary category aircraft regarding maximum weight threshold

for rotorcraft are equally applicable and consistent with this MOSAIC rulemaking. Therefore, the maximum weight threshold for LSA rotorcraft could be established at the same level.

Powered lift vehicles include new and novel designs and technologies such as multi-motor electric propulsion and battery systems that were not envisioned when existing regulatory rule structures for personal use aircraft in the light-sport, primary or normal category were promulgated. However, FAA promulgated an amendment to primary category aircraft recognizing that an increased weight is appropriate for safety to enable design features of unique aircraft or configurations such as seaplanes. GAMA members believe this same increased maximum weight threshold would be appropriate for LSA powered-lift.

Recommendation
GAMA recommends that the FAA use a maximum certificated weight threshold of 2,700 lbs for light-sport category rotorcraft, which is consistent with §21.24 primary category rotorcraft in which the FAA provided the appropriate safety and risk rationale to support its decision.

GAMA recommends that the FAA use a maximum certificated weight threshold of 3,375 lbs for light-sport category powered-lift to accommodate newer designs and features including electric propulsion systems, which is consistent with §21.24 primary category seaplanes in which the FAA provided the appropriate safety and risk rationale to support its decision.

Rationale
Primary category rotorcraft, and fixed wing aircraft, are limited to 2,700 lbs. However, the rule allows for an increase in the weight limit due to certain designs. That is, for seaplanes, the rule allows for an increase to 3,375 lbs. due to the weight difference associated with the float and gear system.

GAMA recognizes that the 2,700 lbs. limit in primary category was a weight limit identified during the time of the rule promulgation based on the existing and anticipated aircraft fleet. However, since the time of the promulgation of the primary category rule, many technological, structural, and safety enhancing technologies have been developed that were not a part of the original assumptions.

22.100(a)(7) requirements
NPRM Proposed Text
(a) Aircraft manufactured in the United States. To be eligible for a special airworthiness certificate in the light-sport category issued under § 21.190 of this chapter, an aircraft must—
…
(7) Meet the aircraft design, production, and airworthiness requirements specified in this subpart using a means of compliance consisting of consensus standards accepted by the FAA.

Comment/Concern
FAA proposes to significantly expand the size, performance and scope of aircraft that can be issued a special airworthiness certificate in the light-sport aircraft category with the objective of improving safety, functionality, innovation, and availability of small general aviation aircraft. This also significantly increases the level of aircraft capabilities and equipment and complexity that can be introduced for the design, production, training and continued airworthiness of light-sport aircraft. The proposed rule text appears overly restrictive and limiting in that it only allows for means of compliance that consist of consensus standards accepted by the FAA. This seems to limit or possibly even prohibit the FAA from having the flexibility to make the appropriate safety decision to accept additional means of compliance to Part 22 requirements that may not yet have been taken up by the consensus standards bodies.

There are a very broad range of means of compliance documents that could be accepted by FAA to include FAA Advisory Circular or policy (such as part 21, 22, 23, 27, powered lift, etc.), bilateral partner

guidance or accepted means of compliance (such as EASA AMC for light-sport aircraft, very light aircraft, part 21 light, CS-23, CS-27, etc.); future harmonization decisions for LSA/part 22 products similar to the Certification Authorities for Transport Airplane (CATA) Worklist Item (CWI) decision documents that FAA currently accepts for part 25 airplanes which is an agreed means of compliance across bilateral authorities to facilitate efficient validation or transferability and acceptance of products (Ref: https://www.faa.gov/aircraft/air_cert/design_approvals/transport/transport_intl/cata). This is important to enable the FAA to have the flexibility and ability to be responsive in a timely manner to address a need when appropriate.

Recommendation
GAMA recommends that the FAA amend proposed 21.100(a)(7) to add the text "or other means acceptable to the administrator" to the end of the statement to provide FAA with the flexibility to accept additional means of compliance for Part 22 design, production, and airworthiness requirements. A corresponding change in text to align with this is necessary in other sections such as 22.190 in which a finding of compliance is to be completed by trained compliance staff with the provisions of the applicable FAA-accepted consensus standards [and means of compliance].

Rationale
FAA should have full discretion and flexibility to accept additional means of compliance for the design, production, and airworthiness requirements of Part 22 as appropriate for safety; to enable and encourage certain designs, equipage and capabilities; to facilitate international acceptance and international movement and support of LSA products; and to ensure a level playing field and competitiveness in the global market.

22.100(b) Aircraft manufactured outside the United States
NPRM Proposed Text
(b) Aircraft manufactured outside the United States. For aircraft manufactured outside the United States to be eligible for a special airworthiness certificate in the light-sport category under § 21.190 of this chapter, an applicant must provide the FAA evidence that-

Comment/Concern
The eligibility criteria for light-sport aircraft are prescribed in proposed 22.100(a) for aircraft manufactured in the United States to include maximum seating capacity, maximum stalling speed, maximum weight, etc. The same LSA design criteria and limitations should be applicable for the issuance of a special airworthiness certificate for a light-sport aircraft manufactured outside the United States. Since the specific design criteria and limitations are contained in sub-paragraph (a), it is not clear how these requirements would be applicable sub-paragraph (b) aircraft manufactured outside the United States.

Recommendation
GAMA recommends that FAA clarify the eligibility requirements for issuance of a special airworthiness certificate for light-sport category aircraft so that the design and performance criteria and limitations are the same for aircraft manufactured both in and outside the United States.

§22.180 Simplified Flight Controls
NPRM Proposed Text
§ 22.180 Special requirements for lightsport category aircraft with simplified flight controls.
An aircraft that meets the following requirements may be designated by the manufacturer as having simplified flight controls—
(a) The aircraft allows the pilot to only control the flight path of the aircraft or intervene in its operation without direct manipulation of individual aircraft control surfaces or adjustment of the available power;
(b) The aircraft is designed to inherently prevent loss of control, regardless of pilot input; and

(c) The aircraft has a means to enable the pilot to quickly and safely discontinue the flight and prevent any inadvertent activation of this feature.

§ 22.105 Control and maneuverability.
A light-sport category aircraft must—
(a) Be consistently and predictably controllable and maneuverable through the normal use of primary flight controls at all loading conditions during all phases of flight; and,
(b) Not have a tendency to inadvertently depart controlled flight or require exceptional piloting skill, alertness, or strength.

Comment / Concern
GAMA appreciates the FAA's recognition of simplified flight controls within MOSAIC. The proposed language in §22.180 (a)(b)(c) are applicable to any LSA aircraft type today and future innovations and appears overly prescriptive in terms of technology assumptions and focuses on minimum functionality rather than establishing a performance-based safety objective consistent with §22.105. That is, §22.180 strongly hints at technologies such as fly by wire, autoland, etc. rather than establishing performance-based safety objectives that allows for various means of compliance and the opportunity for future technological advancements.

To that end, GAMA believes that it would be more appropriate to adopt performance-based language to establish a safety basis, consistent with §22.105, and better enable the use of consensus standards, policy and guidance that allows for flexibility and multiple means of compliance.

In comparison, §22.105 provides a better example of a performance-based airworthiness objectives that establishes a minimum standard that ensures "easy enough" regarding control and maneuverability of LSA aircraft.

GAMA notes several considerable differences between §22.105 and §22.180 regarding controlled flight that can be used to help establish a safety objective for 22.180.

- §22.105 ensures that the aircraft does not have a "tendency to inadvertently depart" controlled flight whereas 22.180 ensures that the aircraft is design to "inherently prevent" loss of control.
- In §22.105 the pilot has "authority" over the aircraft, whereas §22.180, the aircraft "allows" the pilot to control the flight path by ensuring that the aircraft is designed to inherently prevent loss of control, regardless of pilot input.
- §22.105 does not assume or prescribe any level of technology rather provides a safety objective whereas §22.180, automation is assumed, and the subparagraphs strongly imply the use of certain technologies.
- Primary flight controls (yoke, stick, control column, etc.). If an aircraft is designed to inherently prevent loss of control regardless of pilot input, then the manner in which the pilot manipulates, or inputs commands is irrelevant. Even for a traditional cable and pully system, the automation system and features can override a pilot's input.

Recommendation/ Request
GAMA requests that the FAA consider a change to the final rule language to remove implied prescriptiveness from the rule to read as follows.

> **§ 22.180 Special requirements for light-sport category aircraft with simplified flight controls.**
> An aircraft that meets the following requirements may be designated by the manufacturer as having simplified flight controls—
>
> *(a) The pilot's flight control inputs command the desired aircraft motion; and,*

(b)The aircraft shall be designed to inherently prevent loss of control regardless of pilot input; and,

(c) In a normal and abnormal flight control mode, the pilot control scheme shall be consistent with normal flight control mode; and,

(d) An aircraft designed and constructed to include automated systems or provide for some combination of pilot action and automation shall ensure the pilot retains sufficient authority to discontinue or alter the aircraft trajectory

Comment/Concern

The preamble language found on page 47663 provides a description and associated safety intent for Light Sport Aircraft that incorporate simplified flight controls. That language identifies that aircraft that do not have traditional or primary flight controls can be approved with simplified flight controls (SFC), and directly states that SFC aircraft would not have traditional flight controls. This language and concept is reinforced in other sections of the rule preamble, suggesting that the FAA intends that eligibility for a simplified flight control designation prohibits an aircraft from using traditional control inceptors (e.g. yoke, cyclic, collective, throttle, etc.). However, unlike the preamble, the proposed 22.180 rule language is silent on what pilot cockpit controls are to be used on a SFC aircraft, but rather the rule defines only the relationship between the pilot cockpit action directly manipulating an aerodynamic flight control surface. This discrepancy has created confusion among GAMA member companies about the requirements and limitations related to SFC implementation.

GAMA believes that aircraft with traditional controls that provide carefree handling characteristics and that allow the pilot to manipulate cockpit controls in real time to directly provide flight attitude and trajectory control should be eligible for an SFC designation provided the aircraft has sustained hands-off stability and full envelop protection, and that it meets all the other SFC technical requirements of 22.180.

Recommendation

GAMA recommends the FAA clarify the preamble language to remove ambiguity and directly allow pilot cockpit control configurations that resemble and have similar functions to traditional/primary flight controls in SFC designated aircraft. For example, GAMA recommends that an LSA helicopter controlled with cyclic, collective and directional control pedals that has full time stability augmentation and a high integrity, fail functional architecture and which also provides protection against loss of control regardless of pilot input should be eligible for a SFC designation.

GAMA further proposes that pilot experience gained from operation of an SFC aircraft at the low end of the automation spectrum should be creditable to higher ratings, and that a high level of automation should likely not be creditable.

For example, an LSA helicopter with a highly automated flight deck and no physical cyclic, collective or directional control but that instead uses touch screens and soft keys to allow the LSA pilot to command specific flight sequences (such as takeoff, cruise at an altitude, turn to a heading, change to a new altitude, land at a designated location, etc.) would likewise be eligible for an SFC designation, but given the reduced level of active pilot involvement in direct aircraft trajectory control this type of operational experience would not be appropriate to credit toward the operational experience requirements for higher ratings.

§ 61.311 What flight proficiency requirements must I meet to apply for a sport pilot certificate?
NPRM Proposed Text
(d) Hovering maneuvers (applicable only to helicopters).

On page 47657, *The FAA also chose not to consider powered lift privileges for sport pilots, given the complexity and ongoing development of those aircraft designs and associated pilot certification and operational rules that the FAA is considering. However, the FAA expects that future rulemaking may consider these aircraft and associated operations if they can fit within the constraints of sport pilot operations and aircraft certification requirements. As discussed later in the preamble, the FAA is also proposing to expand sport pilot privileges to include helicopter privileges.*

Recommendation/Request
Consistent with GAMA's comments that request that the FAA include privileges for a sport pilot to operate powered lift equipped with simplified flight controls, GAMA requests that the FAA remove the restrictive rule text in § 61.311(d) that makes it applicable only to helicopters to allow for the inclusion of powered lift and other aircraft types as appropriate.

§ 61.316 What are the performance limits and design requirements for the aircraft that a sport pilot may operate?

NPRM Proposed Text
§ 61.316 *What are the performance limits and design requirements for the aircraft that a sport pilot may operate?*

Comment/Concern
The language in the title of this section which specifically states "design requirements" appears to be blurring the lines between aircraft certification and pilot privileges/limitations. As stated in the preamble, the proposed rule would decouple certification design requirements for light-sport category aircraft and privileges of a sport pilot certificate. This section is intended to prescribe requirements which establish the parameters and performance limitations for the aircraft in which a sport pilot may act as pilot in command. The design requirements for an LSA aircraft are prescribed in part 22 and the design requirements for normal category airplane and rotorcraft are prescribed in parts 23 and 27 respectively.

Recommended change or clarification
GAMA recommends that the FAA remove the term "design requirements" from the title of section 61.316 and replace with "parameters" to read "What are the performance limits and parameters for the aircraft that a sport pilot may operate?

61.316(a)(1)
NPRM Proposed Text
(a)(1) A maximum stalling speed or minimum steady flight speed without the use of lift-enhancing devices (Vs1) of not more than 45 knots CAS, except for airplanes, which must have a Vs1 speed of not more than 54 knots CAS at the aircraft's maximum certificated takeoff weight and most critical center of gravity.

Comment/Concern
GAMA supports the MOSAIC proposal to expand sport pilot privileges to increase the size, performance and scope of aircraft that can be operated by a sport pilot. This would enable current aircraft owners or operators, most with a private pilot's license, to be able to exercise sport-pilot privileges to continue operating their aircraft. However, the proposed stalling speed of 54-knots CAS for an airplane would draw a performance-based division between very similar make and model airplanes with the same performance and handling characteristics that meet the other proposed expansion criteria. For example, the Piper Archer which is very comparable to other similar make/model 4-seat, piston-engine airplanes,

has a maximum stalling or minimum steady flight speed without the use of lift-enhancing devices (VS1) of just over 57-knots CAS. This limit should be adjusted to ensure that the same opportunity and benefit is made available to owner operators of similar types of airplanes.

Recommendation
GAMA recommends that the maximum stalling speed for an airplane that a sport pilot can fly be increased to 58 knots CAS to better capture a broad range of specific airplane makes and models with very similar flight characteristics. This stall speed remains below that of primary category in which FAA provided rationale for easy to fly and is consistent with the safety continuum.

61.316(a)(8)
NPRM Proposed Text
(a)(8) For helicopters, they must be certificated with the simplified flight controls design and designation.

Federal Register Page 47657 - *The FAA also chose not to consider powered lift privileges for sport pilots, given the complexity and ongoing development of those aircraft designs and associated pilot certification and operational rules that the FAA is considering. However, the FAA expects that future rulemaking may consider these aircraft and associated operations if they can fit within the constraints of sport pilot operations and aircraft certification requirements.*

Comment/Concern
FAA proposes to recognize the capability of a light-sport aircraft designated as having simplified flight controls by allowing a sport pilot to operate a LSA rotorcraft with simplified flight controls. GAMA supports this proposal. However, the FAA does not extend the same recognition and ability for a sport pilot to be able to operate a powered-lift aircraft designated as having simplified flight controls. FAA states that this is based on the novelty of these aircraft rather than a performance-based justification and proposes to revisit and possibly remove this limitation in future rulemaking. GAMA believes the capability of the technology and the ease and safety of pilot operation of an aircraft with simplified flight controls is very comparable between a light-sport rotorcraft and powered-lift. The level of automation and aircraft authority that inherently prevents loss of control should be more than sufficient for a sport pilot to operate a powered lift aircraft that is seeking credit for simplified flight controls.

Recommendation
Rather than waiting for future rulemaking, GAMA recommends that the FAA add the privilege for a sport pilot to operate an LSA powered lift vehicle that is certificated with the simplified flight controls design and designation, consistent with the requirement for a sport pilot to operate certain LSA rotorcraft. GAMA recommends that the FAA include "and powered lift" to read,
61.316(a)(8) "*For helicopters **and powered lift**, they must be certificated with the simplified flight controls design and designation."*

Rationale
Proposed section 22.180 provides performance-based requirements for the design of simplified flight controls which are applicable to all light-sport category aircraft. Simplified flight control capability provides an equal level of mitigation and level of safety for a sport pilot to safely operate both a rotorcraft and a powered lift.

§ 61.329 How do I obtain privileges to operate an aircraft at night?
Comment/Concern
The FAA proposes night flight for sport pilots who receive at least 3 hours of flight training at night from an authorized instructor and receive a logbook endorsement certifying that they are proficient in the operation of the aircraft at night plus conduct at least one cross country night flight, with a landing at an

airport of at least 25 nautical miles from the departure airport and requires the sport pilot accomplish at least ten takeoffs and landings at night with an authorized instructor. Many sport pilots are what are termed transition pilots. They already hold a certificate in a category and class of aircraft and are seeking to add a new Sport Pilot category and class to their pilot certificate. This seems unreasonable for a pilot who is already qualified for night flights.

Recommendation
A more reasonable approach would be to require 10 takeoffs and landings at night in the new Sport Pilot category and class, including an instructor endorsement. Additionally, the Sport Pilot CFI may also have experience in night flight in other than Sport Aircraft category or class aircraft.

GAMA recommends that the FAA not require a transition pilot to do the cross-country night and the 10 takeoffs and landings with the instructor if they have already demonstrated the capability.

Rationale for change
Once a pilot has been trained at night, it should just transfer.

Requests for Final Rule Preamble Clarification

§ 22.140 Controls and Displays
NPRM Proposed Text
§22.140 The aircraft must be designed and constructed so that the pilot has the ability to reach all controls and displays in a manner that provides for smooth and positive operation of the aircraft.

Federal Register Page 47668 - *8. Accessibility of Controls and Displays - This proposed performance requirement is necessary to enable ergonomic and human factors designs in light-sport category aircraft that result in these aircraft being simple to operate… To comply with the provisions of the proposed rule, a manufacturer would design and install controls and displays that would permit the pilot to readily monitor and perform defined tasks associated with the intended functions of systems and equipment. These provisions would reduce the potential for pilot error and minimize the risk of resulting hazards.*

Recommendation
GAMA recommends that FAA clarifies that all categories of light-sport aircraft may have single controls and for those that may have dual controls, that access to a single control meets this requirement.

§ 61.313 What aeronautical experience must I have to apply for a sport pilot certificate?
NPRM Proposed Text
§ 61.313(a) Aeronautical experience. Use the following table to determine the aeronautical experience you must have to apply for a sport pilot certificate: [see table]

Comment/Concern
As discussed on page 47689, an applicant for a sport pilot certificate who seeks to obtain a helicopter rating would be required to log at least 30 hours of helicopter flight time, 15 hours of flight training, and 5 hours of solo flight. The FAA proposes these minimum experience requirements because the minimum recreational pilot grade of pilot certificate seeking a helicopter rating requires comparable minimum experience requirements.

Recommendation/Request
GAMA requests the FAA clarify and elaborate on the rationale for rotorcraft and helicopter category with SFC being 30 hrs. of flight time, which is significantly higher than others? If the FAA includes powered

lift SFC operation by a sport pilot, would the same rationale apply to powered lift? GAMA would recommend that the same would apply.

§ 65.107 Repairman certificate (light-sport): Eligibility and training courses.

NPRM Proposed Text

65.107(d) Eligibility requirements: Repairman certificate (light-sport) with a maintenance rating…

Federal Register Page 47693 - *Further, under § 65.107(d), a certificated repairman (light-sport aircraft) with a maintenance rating is not permitted to approve for return to service an aircraft (or any part thereof) unless that person has previously performed the work concerned satisfactorily. If the person has not previously performed such work, then the person may show the ability to do the work by performing it to the satisfaction of the FAA or under direct supervision of certain persons. These requirements (i.e., class specific privileges/limitations and performance history) provide for a repairman who is sufficiently experienced and knowledgeable on the aircraft and the specific work being performed.*

Recommendation or Request

GAMA requests clarification that training or other acceptable means would address this requirement.

§ 91.319 Aircraft having experimental certificates: Operating limitations.

NPRM Proposed Text

91.319(c) Unless otherwise authorized by the Administrator in operating limitations, no person may operate an aircraft that has a certificate issued under § 21.191 of this chapter over a densely populated area.

Federal Register page 47702 – The current regulation presents difficulties for operators, as they can obtain special operating limitations for takeoff and landing, but not for any operations between takeoff and landing. Due to urban sprawl, it has become increasingly difficult for operators to avoid operating over densely populated areas. To address inconsistencies and possible operator difficulties in the continuation of all flight segments, the FAA proposes to amend § 91.319(c) to allow the Administrator to grant operating limitations to certain aircraft with experimental certificates to conduct operations over densely populated areas or in congested airways, including, but not limited to, takeoffs and landings.

Comment

GAMA has received feedback from multiple OEMs highlighting the importance of FAA addressing this problem/difficulty as stated in the preamble and providing strong support for the FAA's proposal in 91.319(c) for granting operating limitations to particular aircraft holding experimental airworthiness certificates to conduct takeoffs and landings over densely populated areas or in congested airways. GAMA recognizes that this is a significantly beneficial change to the regulations and for aircraft manufacturers who issue many experimental licenses each year. The following comments reference FAA's discussion in the preamble toward the development of policy requirements and procedures for obtaining the necessary authorization and operating limitations.

FAA Discussion - Development of policy and procedures

Federal Register page 47703 – In order to determine whether an aircraft with alterations or appliances would be able to obtain this operating limitation, the FAA would consider all facts presented by the operator, as well as procedures described in FAA guidance… Such procedures would be developed following this rulemaking and would be made available for public comment prior to adoption.

Comment/Concern
GAMA welcomes and supports the FAA proposed change to § 91.319(c). However, it is imperative that the new regulation not be interpreted by individual FAA offices as a complete prohibition of flight over densely populated areas, since the change will remove the statement specifically limiting to takeoffs and landings over densely populated areas for particular aircraft when authorized.

Since flight over densely populated areas will be prohibited for aircraft with experimental airworthiness certificates "Unless otherwise authorized by the Administrator in operating limitations…", FAA guidance such as FAA Order 8130.2 will be referred to when determining if flight over densely populated areas can be authorized. Therefore, the wording of the revision to this or other related documents will be very important. The discussion on page 47703 of the Federal Register stated that the procedures to determine whether an aircraft would be able to obtain an operating limitation allowing flight over densely populated areas would be developed and made available for public comment prior to adoption. It was not clear how this would be accomplished, since it would not be a regulatory change and therefore would likely not appear in the Federal Register.

Recommendation/Request
It is requested that the FAA engage with industry when developing this process in order to understand and consider the situations, scenarios and locations in which these types of operations are important to ensure operational and practical realities of the proposed process to meet the needs of both FAA and industry.

Finally, creating of approved routings for aircraft to conduct operations prior to 91.319(b) compliance by the local MIDO or by AFS-800 has often created direct safety of flight conflicts with the established ATC routings for the airports in that area. It is important as we develop these future procedures in regards to takeoff and landing that ATC is included as a stakeholder so it can ensured that by creating one safety mitigation we are not creating a safety risk in another area.

FAA Discussion – Consideration of several factors
Federal Register page 47702 – When issuing such operating limitations, the FAA will consider several factors (discussed in subsequent paragraphs), including whether the aircraft in question is one of proven design and has records for continued operational safety.

Comment/Concern
FAA states that the considerations for accepting those limitations must include an assessment that the airplane must be of "proven design" and "that demonstrate significant safety attributes and records for continued operational safety". The challenge with an aircraft centric approach, such as requiring historical COS data, to justify approval for flight over densely populated areas is this is a prescriptive one means approach that will severely inhibit new product development. Except for the rare proof of concept aircraft, experienced aircraft manufacturers design and develop aircraft that can meet or exceed the relevant certification requirements which is a much higher bar than 91.319(b) requiring no hazardous flight characteristics. GAMA believes that FAA should also consider manufacturers and organizations having significant experience with airplane design, certification, flight test, production, flight ops, and maintenance that have procedures in place to assess and address the safety of new designs in flight test and demonstration. This is currently recognized by FAA and exists in FAA Order 8130.2J: "However, operating limitations involving certificate holders who have demonstrated a high degree of competence in manufacturing and/or operations (for example, an original equipment manufacturer that has an ODA, PC, or TC) should be considered for variances from the standard limitations when appropriate."

Recommendation
GAMA recommends that FAA policy and procedures recognize the safety pedigree of experienced organizations and organizational capabilities to support the assessment of experimental aircraft and consideration for accepting appropriate operating limitations consistent with Order 8130.2J: "However,

operating limitations involving certificate holders who have demonstrated a high degree of competence in manufacturing and/or operations (for example, an original equipment manufacturer that has an ODA, PC, or TC) should be considered for variances from the standard limitations when appropriate.".

Rationale
GAMA believes FAA should also consider organizational experience with airplane design, certification, production, flight ops, and maintenance. Experienced organizations (particularly organizations that have an ODA and run experimental flight test operations) that have procedures in place for all of these aspects will provide an acceptable level of safety for experimental flight operations over populated areas. This is important for airplanes that are in flight test or demo service, but don't yet have enough flight time to be considered "proven" or have any continued operational safety record. In many cases, it takes several years to get some limitations lifted for aircraft so demo flights and other missions can be flown in areas necessary for manufacturers customers.

FAA Discussion – Consideration of several factors
H. Operations. 2. Aircraft Holding Experimental Airworthiness Certificates Para 4
While the term "experimental" is used to describe these aircraft, that does not automatically mean they lack evidence of continued operational safety or a strong safety record. A significant number of aircraft hold experimental airworthiness certificates and, while some of these aircraft lack sufficient evidence of safety to be issued the proposed operating limitations, many aircraft holding experimental certificates have consistently demonstrated safe operational records.

Comment/Concern
GAMA agrees with this statement. Although new products are always under development and those products need leeway in order to be developed, upgrades are continually occurring to the current product line and those aircraft already have a long safety history. For example, the conforming test article for a test program by its very nature is experimental because of instrumentation and other modifications required to collect the needed certification data. However, that "experimental" aircraft is the one used during flight test to prove that all the production aircraft are safe. Experimental does not mean less safe, it often just means different or non-standard.

FAA Discussion – experimental aircraft that have had alterations
H. Operations. 2. Aircraft Holding Experimental Airworthiness Certificates Para 5
FAA anticipates that the proposed operating limitations would not be issued to experimental aircraft that have had alterations or appliances that have not been adequately tested by the original manufacturer. In order to determine whether an aircraft with alterations or appliances would be able to obtain this operating limitation, the FAA would consider all facts presented by the operator, as well as procedures described in FAA guidance, including FAA Order 8130.2.

Comment/Concern
OEMs especially those with ODAs have established procedures for determining 91.319(b) compliance due to aircraft modifications, usually contained in a FAA approved Experimental Operating Procedures. OEMs must be able to make numerous and rapid changes to aircraft undergoing development to ensure the aircraft fully complies with the certification requirements.

Recommendation or Request
Will this existing process, which already works well, be affected by this? Requesting new operating limitations from the FAA every time a modification is made to an aircraft will be burdensome to both the FAA and the OEM with no safety benefit.

FAA Discussion – aircraft with ejection seats
H. Operations. 2. Aircraft Holding Experimental Airworthiness Certificates Para 7
FAA is concerned about the increased risk from allowing aircraft with ejection seats or detachable external stores to operate over densely populated areas.

Comment/Concern
Equating ejections seats with increased aircraft risk is a false and unsupported assumption. Modern aircraft being developed for the defense market are equipped with ejection seats to meet customer requirements for crew survivability in high-risk mission profiles, such as combat or military training. The ejection seats are not installed to counteract an unsafe aircraft characteristic. The probability of a modern defense aircraft suffering a catastrophic failure that would lead to a risk to persons on the ground is equivalent to any other aircraft in that category or class. A crew ejecting from an aircraft experiencing a catastrophic failure is no different than a crew staying in a non-ejection seat equipped aircraft with no escape option, since both aircraft will impact the ground.

Recommendation or Request
What's important is the design of the aircraft and the policies and procedures surrounding operation and maintenance of the aircraft to ensure it maintains the required level of safety. Some may try to argue that once the crew has ejected, the aircraft is no longer being actively controlled. That of course assumes the catastrophic failure that has occurred still allows for aircraft control. If control is possible, the crew has the ability to steer the aircraft on a vector that will minimize harm to persons on the ground prior to ejection. In addition, accidents involving ejection seat aircraft have shown that the crew often delay the ejection past the recommended minimum safe altitude to ensure the failed aircraft does not pose a risk. Professionally trained ejection seat crews don't just pull the handle without regard to those that may be impacted by their actions.

FAA Discussion – aircraft with detachable external stores
H. Operations. 2. Aircraft Holding Experimental Airworthiness Certificates Para 7
FAA is concerned about the increased risk from allowing aircraft with ejection seats or detachable external stores to operate over densely populated areas.

Comment/Concern
There are existing prohibitions on external stores (must be pinned etc.) that are effective and prevent inadvertent detachment while operating in the national airspace system. Stores can only be placed in an expendable state within military restricted areas.

Recommendation or Request
Is the intent to further restrict the carriage of stores in a captive state to prevent operation from home airfields? The majority of flight testing with stores can be completed with them in a pinned state and restrictions on those operations would severely hamper new product development with no safety benefit.

FAA Discussion – additional maintenance requirements
H. Operations. 2. Aircraft Holding Experimental Airworthiness Certificates Para 8
The FAA anticipates that aircraft granted the proposed operating limitations may be subject to additional requirements, such as increased maintenance requirements, in order to establish an equivalent level of safety.

Comment/Concern
Maintenance requirements at an OEM for a new product are almost always above and beyond what is required for the certified version of that aircraft. For example, since most test missions are flown from the OEM's home base, the experimental aircraft undergoes rigorous pre and post flight inspections by trained

maintenance personnel after every flight as opposed to normal production operations where the aircraft isn't examined by maintenance for days or weeks at a time. Hopefully the intent here is that those OEMs that have MIDO oversight of their maintenance and quality systems and processes should be recognized for meeting these requirements already.

§ 21.193 Application for special airworthiness certificates issued for experimental purposes

NPRM Proposed Text

21.193 An applicant for an experimental airworthiness certificate must submit the following information in a form and manner prescribed by the FAA:

(a) The experimental purpose for which the aircraft is to be used.

(b) Enough information to describe the operation, equipment, or test as applicable.

Federal Register page 47709

The applicant would be required to provide the § 21.191 purpose(s) for which application is being made as well as provide enough data for the FAA to understand the scope, risks, and hazards of the planned operations, equipment, or test, as applicable.

Recommendation/Request

Will this affect current processes involving program letters that have a significant amount of detail contained within them? For most development and certification test programs, the exact details of where and when testing will be completed and what additional developmental testing will be required to ensure the aircraft can be certified is unknown. If every time a new test requirement (location or type of test) come to us, an obligation to submit a new program letter will create a level of unnecessary overhead for both the FAA and the OEM. The current system with FAA pre-approved Experimental Operating Procedures per 8130.2J is working well, and provides an appropriate level of oversight.

21.191 & 22.100 Regarding the issue of experimental and special airworthiness certificates for aircraft manufactured outside the United States.

NPRM Proposed Text

21.191 Issue of Experimental Airworthiness Certificates

(j) Operating light-sport category kit built aircraft. Operating an aircraft of a type that has been certificated under § 21.190 and assembled from an aircraft kit in accordance with manufacturer's assembly instructions that meet an applicable FAA-accepted consensus standard. An applicant must provide the following:….

(5) For an aircraft kit manufactured outside the United States, evidence that the aircraft kit was manufactured in a country with which the United States has a Bilateral Airworthiness Agreement concerning airplanes or a Bilateral Aviation Safety Agreement with associated Implementation Procedures for Airworthiness concerning airplanes, or an equivalent airworthiness agreement.

22.100(b) Aircraft manufactured outside the United States. For aircraft manufactured outside the United States to be eligible for a special airworthiness certificate in the light-sport category under § 21.190 of this chapter, an applicant must provide the FAA evidence that—

(1) The aircraft meets the requirements of this subpart;

(2) The aircraft was manufactured in a country with which the United States has a Bilateral Airworthiness Agreement concerning airplanes or Bilateral Aviation Safety Agreement with associated Implementation Procedures for Airworthiness concerning airplanes, or an equivalent airworthiness agreement; and

(3) The aircraft is eligible for an airworthiness certificate, flight authorization, or other similar certification in its country of manufacture.

Comment/Concern
Additional clarification and understanding is needed regarding the requirements and procedures for the issuance of an experimental and special airworthiness certificates for aircraft manufactured outside the United States.

Recommendation/Request
There is particular interest for guidance to facilitate understanding of this provision for the exchange of products between the US and EU in accordance with the EASA and FAA bilateral implementation procedures. In addition, GAMA requests that the FAA provide language that clarifies the pathway on how an aircraft gains airworthiness in the US if already has an existing airworthiness certificate from another regulatory entity.

§ 61.45 Practical tests: Required aircraft and equipment.
NPRM Proposed Text
§ 61.45 Practical tests: Required aircraft and equipment.
(g) Aircraft with a simplified flight controls designation. An applicant for a pilot certificate, rating, or privilege may use an aircraft with a simplified flight controls designation for a practical test if—
(1) The examiner agrees to conduct the test;
(2) The examiner holds the appropriate category and class rating or privilege, the simplified flight controls model-specific aircraft endorsement, and an appropriate FAA designation to conduct the test;

Comment/Concern
61.45 (g)(2) is more restrictive than what FAA requires when conducting checkride/examination in other aircraft. Further, the proposed language does not align with order 8900.1 and takes a different approach. Is it critical to be so restrictive?

Reference FAA Order 8900.1, Vol. 5, Ch. 1, Sec. 4 Single Controls. At the discretion of the inspector, an aircraft furnished by the applicant may have a single set of flight controls. In this situation, the inspector observes the applicant from the ground or from another aircraft. Tests for the addition of aircraft class or type ratings to Private and Commercial Pilot Certificates may be conducted in single-control or single-place aircraft under § 61.45(e)(1) and (2).

Recommendation/Request
GAMA requests that the FAA consider the fact that it seems contradictory to require the most experienced instructor pilots to gain additional skills and training on SFC aircraft and then not allow the least experience pilots who learn to operate an SFC aircraft log time towards higher ratings.

DPE currently may at their discretion conduct a check ride in an experimental category aircraft which would not be required to have any standard flight control set up. If an examiner has demonstrated the level of expertise to be a DPE then they should be able to pass judgement on if they are safely able to fly it.

§91.327 Aircraft issued a special airworthiness certificate in the light-sport category: Operating limitations.

NPRM Proposal
(b)(6) Each major repair or major alteration is authorized by the manufacturer or a person acceptable to the FAA, and is performed and inspected in accordance with maintenance and inspection procedures developed by the manufacturer or a person acceptable to the FAA; …

Comment/Concern
GAMA supports the proposed changes in the regulations related to minor and major alterations. Avionics manufacturers are often asked by light-sport aircraft owners if they provide upgraded or different avionics and autopilot solutions. Currently there is no practical way to support these customers outside of the original LSA manufacturer who often does not support individual owner/operator requested alterations for their aircraft. GAMA believes that the industry needs a practical means for third parties to perform major alterations to LSA and supports the provision for "a person acceptable to the FAA" to authorize such alterations.

Under current regulation any person may receive FAA approval for major repair, alteration, or major change in type design for Part 23, 25, 27, and 29 aircraft. Part 22 aircraft will require a similar path to receive FAA approval for major repair, alteration, or major change in type design. The revision of the ASTM specification that the aircraft meets is publicly available, and a modifier would have the responsibility to ensure the modified aircraft continues to meet the requirements of that standard.

The rule allows for "a person acceptable to the administrator" to perform these alterations. The original LSA rule clarified the intent of this phrase for minor alterations, but it is not clear if that same list also applies to major alterations. A clear path for receiving FAA approval for major repair, alteration, or major change in type design is required to support the life cycle of Part 22 aircraft and to afford the ability to add safety enhancing technology or to meet future operational mandates, without reliance upon the OEM.

Request
GAMA requests that the FAA establish a clear practical path for 3rd parties to be "a person acceptable to the FAA" to authorize major alterations and to develop maintenance and inspection procedures as a practical alternate to the original manufacturer.

Powerplant Failures – all references throughout the NPRM
Concern
Currently, the light-sport aircraft definition does not expressly require an aircraft to have the capability to maintain directional control and a controlled descent in the event of a powerplant failure.
To fit the construct of the FAA safety continuum, as well as the expectation for the use of new aircraft that can be safely operated by sport pilots, the FAA has determined that any aircraft (except balloons and airships) that a sport pilot operates must have the capability to establish a controlled descent and directional control in the event of a partial or complete power plant failure.

It is unclear if controlled descent is targeted towards single/partial powerplant loss.

Request/Recommendation
GAMA recommends that the FAA clarify, throughout the NPRM, if the intent is for single, partial, or all powerplant regarding complete or partial loss.

Other Comments

Maintenance and Continued Airworthiness
Under the current LSA airworthiness regulations, an SLSA can be changed to an ELSA by a DAR, allowing the owner to make modifications and install new equipment, at the cost of operating limitations very similar to an E-AB aircraft. The most similar existing path for a Part 23 certified aircraft is to switch it to "Experimental Exhibition" category, which is far more burdensome and restrictive than ELSA or E-AB, and is frankly abused by most Experimental Exhibition aircraft owners.

GAMA proposes that the FAA consider legacy certified aircraft (Part 23 or CAR3) that falls within LSA guidelines (think Piper Cub, Aeronca Champ, Taylorcraft, etc) be allowed to be changed to an ELSA as well. This would create a path for owners of these lightweight, mostly vintage-built aircraft to keep them functional with updates to modern avionics and substitutions of modern parts when OEM support and replacements are no longer available, in addition to reducing the operating cost by allowing owner maintenance after taking a Light Sport Repairman training course.

Special Flight Authorizations

This NPRM only covers FAA issued experimental flight permits. A commenter requests this NPRM apply to FAA issued special flight authorizations (SFA) also since their flight test vehicles are Canadian built and C registered and have TCCA experimental flight permits with FAA SFAs and operate in the U.S. (i.e. Bombardier at Wichita Airport)

Modified Operating Limitations

Another aspect that should be considered is that when operating from tower control airports, the experimental airplanes need to comply with ATC instructions and flow control. To continually request amended instructions due to operating limitations that restrict flight over specific areas creates a less safe airspace environment as it could require opposite direction traffic. Current standard wording is – "Note that a clearance from air traffic control (ATC) is not authorization for a pilot to deviate from any rule, regulation, operating limitation, or minimum altitude, or in the pilot's opinion would place the aircraft in jeopardy, it is the pilot's responsibility to request an amended clearance."

How will this new process to allow flight over densely populated areas be applied to flight test vehicles that obtain a flight permit or special flight authorization once a year, but are updated with new software or physical modifications throughout the permit period? The responsibility to limit or not limit flight over densely populated areas must reside with the Design Authority that modifies the flight test vehicle. Companies that have a process of engineering evaluation and flight test vehicle flight restrictions for each modification should be given consideration to self-regulate flight over densely populated areas after the FAA has reviewed and agreed to the company's experimental operating procedures.

Referenced FAA Order 8130.2J already has wording to allow for modified operating limitations: "Table D-1. Additional operating limitations must include the applicable limitations from table D-1 of this appendix. However, operating limitations involving certificate holders who have demonstrated a high degree of competence in manufacturing and/or operations (for example, an original equipment manufacturer that has an ODA, PC, or TC) should be considered for variances from the standard limitations when appropriate."

In practice, we have never seen variances from the standard limitations when appropriate so how will the newly worded regulation ensure that we are given the proper consideration? Our company already has experimental operating procedures that assess flight risks and apply restrictions on ourselves, but these are not taken into consideration when the FAA provides SFAs for our flight test vehicles. Will FAA order 8130.2 be updated to provide special operating limitations in a more straightforward way for the MIDO inspectors to allow these new modifications to operating limitations?

==========

SECTION III: GAMA SUPPORT FOR GA INDUSTRY ASSOCIATION COMMENTS

==========

GAMA INTRODUCTION: The following comments are excerpts from the GA industry association comments submitted to the docket by AOPA, EAA, NATA and NBAA and reflect those sections and portions of the commenters response and recommendations for which GAMA supports and are incorporating into this submittal as our own comments.

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

GAMA supports the GA industry association recommendation for an increase of the stalling speed to 58 knots which is consistent with GAMA recommendation in Sections I & II.

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.

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.

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.

GAMA also provides an additional recommendation that the FAA continue supporting the exclusion of all agricultural and firefighting aircraft from noise requirements 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.

Sport Pilots and Instructors with a Sport Pilot Rating

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,[1] 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. Consistent with the GA industry association comments, GAMA recommends that the stalling speed for airplanes that a sport pilots may fly be increased to 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} to 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.

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.

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

Maintenance of Light-Sport Aircraft

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.