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Subcommittee on Aviation

"State of General Aviation Industry"

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Chair Rick Larsen and Ranking Member Garret Graves, on behalf of the General Aviation Manufacturers Association (GAMA) and its member companies, thank you for convening today's hearing which focuses on the opportunities and challenges facing general aviation. For general aviation manufacturers and the industry overall, this is a transformative time, and it is very exciting to be with you as we work together to plot and navigate the industry's future path.

We want to state the deep appreciation we have for this Committee and the United States Congress for their support of the general aviation industry. We look forward to working with you, House Transportation and Infrastructure Chair Peter DeFazio and Ranking Member Sam Graves, members of the House Aviation Subcommittee, and the membership of the full committee on issues of critical importance to the future strength of the United States (U.S.) general aviation segment and the broader aviation ecosystem. I also want to take this opportunity to thank Chair DeFazio for his leadership and dedication on aviation issues during his service on this committee and in Congress.

GAMA represents more than 140 of the world's leading manufacturers of general aviation airplanes, rotorcraft, engines, avionics, components, and related services and technologies. GAMA members are also providers of maintenance and repair services, fixed-based operations, pilot and maintenance training, and aircraft management. Additionally, GAMA represents companies in the emerging sector of advanced air mobility, which includes the development of vertical take-off and landing aircraft as well as electric propulsion, hydrogen-powered aircraft and autonomous systems for civil purposes. GAMA companies have facilities in 47 U.S. states and 15 countries. A recent economic impact study determined that the general aviation industry supports $247 billion in economic output and 1.2 million jobs in the U.S.[1]

State of General Aviation Manufacturing

The general and business aviation industry has endured a great deal since the outset of the COVID-19 pandemic. We have faced numerous challenges and our resiliency was tested, but our manufacturers actively managed their way through with a focus on the safety of our employees, the growth of our businesses, and relations with customers. As we begin to come out of the pandemic, we are seeing that our industry is alive with new aircraft, avionics, engine, and electric motor developments with a keen eye on the future.

On behalf of the general aviation manufacturing industry, I want to thank you for the U.S. Small Business Administration Payroll Protection Program (PPP) and the Aviation Manufacturing Jobs Protection (AMJP) Program which assisted manufacturers and maintenance providers, especially

[1] General Aviation's Contributions to the U.S. Economy, 2018 Price Waterhouse Coopers Study on behalf of Aircraft Electronics Association (AEA), Aircraft Owners and Pilots Association (AOPA), Experimental Aircraft Association (EAA), General Aviation Manufacturers Association (GAMA), Helicopter Association International

small and mid-size businesses, impacted by the pandemic. In particular, the AMJP payroll assistance program, a fifty-fifty cost share program between employers and the federal government, focused on protecting workers and strengthening a fragile supply chain and we deeply appreciate the leadership role of Chair Larsen and Rep. Ron Estes (R-KS) in these efforts. Funding from this program assisted employees in 43 states and Puerto Rico, illustrating the breadth and scope of U.S. aviation manufacturing.

GAMA's latest General Aviation Aircraft Shipments and Billings Report, which was released in late February, showed that our industry began to recover in 2021. While not back to pre-pandemic numbers, overall, when compared to 2020, all aircraft segments -- airplanes and helicopters -- saw increases in aircraft deliveries for a total value at $26.7 billion, an increase of 9.8 percent. Currently, total aircraft shipments are converging on figures that were seen before the outset of the pandemic with one exception: piston airplane training airplanes which are seeing delivery rates exceeding numbers we have not seen since the first half of the last decade.

During the pandemic, GAMA conducted a member company survey and 70 percent of the survey respondents reported supply chain issues and our members continue to face challenges in this area. Our industry's supply chain constraints mirror those of the broader economy, including logistics of sourced parts such as computer chips, higher than usual churn in employee turnover, and de-risking each supplier through active engagement by our member companies. We also see operators flying at higher levels, for some segments exceeding operations seen in 2019, which places further demand on supporting operators with parts to support the overhaul and regular maintenance of the fleet as hours are being added.

We applaud the leadership of this committee for the recent introduction and Committee passage of the "Aerospace Supply Chain Resiliency Task Force", which would identify and assess risks as well as detail best practices and mitigations to help protect the U.S. aerospace supply chain against future disruptions.

Addressing Certification, Validation and Regulatory Issues

GAMA also recognizes the congressional engagement and work that culminated in the passage of the Aircraft Certification, Safety, and Accountability Act (ACSAA). An effective, reliable certification process is critical for safety and the industry's ability to deliver new aircraft and technologies to the U.S. and global market. We want to work with the Committee as you evaluate the implementation of ACSAA especially given FAA delays, as an example, in promulgating a safety management system rule for manufacturers. We suggest the following areas of focus:

- Forty percent of the employees in the FAA Certification Office have less than three years of direct certification experience, which underscores the workforce challenges being faced. Given this, GAMA believes emphasis must be placed at the project level to ensure FAA has an adequate level of staff resources, including appropriate training. This emphasis will be particularly needed to improve safety oversight and ensure timely consideration of projects.
- FAA should more effectively utilize the Safety Oversight and Certification Advisory Committee (SOCAC) to help facilitate implementation as well as to look at other improvements for the certification process.

- Getting product to the international marketplace has also faced impediments. FAA recently stood up an International Validation Branch, but it lacks resources and staffing to engage with other foreign authorities and fully develop tools, such as metrics and validation workplans, to facilitate both incoming and outgoing validation projects. These investments and improvement activities are critical to ensuring the effectiveness of bilateral agreements and validation of product into the global marketplace.
- A contributing factor to the slow certification of product has been significant delays in the promulgation of rulemaking, policies, and guidance. There is currently a large backlog of technical standards, policy memos, orders, and advisory circulars. These delays are impacting all facets of aviation and frustrate industry and policymakers alike. There is a lack of transparency and accountability in this process, and it is hindering safety, security, and U.S. advancements and competitiveness. A congressionally directed study may be warranted to look at process improvements including consideration of best practices from other regulatory authorities.
- Additionally, FAA must develop a more effective issue resolution process so that projects are not held up unnecessarily and the right group of technical experts are brought together to resolve any differences or technical questions.

Advancing Workforce Development – FAA and Industry

Tied closely to certification improvements, collectively both the FAA and industry need a strong workforce to meet the safety expectations of the flying public and industry growth. The FAA has recognized the ongoing challenge to identify and attract talent into key safety positions and has maintained an Aviation Workforce Plan in their attempt to address these needs. However, the

agency needs to continue to explore training opportunities and financial incentives as well as partnering with industry to better develop a strong workforce for both industry and FAA. Finding highly qualified individuals in evolving technology is difficult, but especially those in technical fields that are rapidly advancing in discovery and application, such as modeling, flight crew interface (human factors), system safety, software, artificial intelligence, and computer science. Industry would be interested in working with FAA and Congress on initiatives to help attract these integral, technical skills or other knowledge-sharing opportunities that could be of benefit to both FAA and industry personnel and advance safety oversight and technical understanding.

The FAA also addresses their workforce needs by utilizing designees. These individuals and organizations in the aviation industry are authorized to conduct examinations, perform tests, and issue approvals and certificates on behalf of the FAA. Regardless of whether these tasks are performed by FAA employees or designees, we suggest the FAA be directed to establish minimum standards or credentials applicable to all individuals that are making these examinations, performing tests, and/or issuing approvals on behalf of the FAA.

An important complement to workforce efforts at FAA is attracting and retaining a competent and capable workforce for the aviation industry and at our member companies. This is particularly troublesome as our industry is currently struggling to fill technically skilled jobs to operate, maintain, and manufacture aircraft. This workforce challenge will become even more acute as aviation evolves through innovation, which will require a workforce that is more diverse and with broader competencies or new skill sets.

The 2018 FAA Reauthorization provided the Department of Transportation with the authority to provide up to $10 million in grants to facilitate workforce development of pilots and maintenance providers (Section 625).[2] Our membership believes the scope and funding for these programs needs to be significantly expanded, particularly given our understanding that demand for this funding has been significant. We also believe the program should specifically include manufacturing workers as an area of focus. In addition, Section 625 should be modified to measure results and provide feedback from participants, engage school counselors more directly in aviation workforce efforts, and facilitate training to teachers on how to start and conduct a successful aviation education program. Attention should also be paid to track how a program applicant will connect students with either jobs or the next step in the education process (for example, from high school to college or a technical school) to sustain a pipeline of talent to the industry long-term and emphasize activities that engage, educate, and equip participants to directly feed into the aviation sector.

Finally, we would like to highlight that this is the ten-year anniversary of GAMA's Aviation Design Challenge. The challenge has had over 600 teams participate, representing over 400 high schools from 48 states and has inspired many students to get involved in general aviation and/or pursue a college degree or career path related to the sector. In August, the winning team from upstate New York will travel to CubCrafters based in Washington State to participate in a week-long aviation manufacturing experience, which includes hands-on exposure to the production of aircraft. Our second-place team from Washington State will participate in a two-day STEM lab

[2] FAA Reauthorization Act of 2018 (P.L. 115-254)

camp which creates a fun, engaging learning environment through the hands-on training of a flight simulator and fosters interests in STEM outside the classroom.

Addressing Piston Fleet Fuel

The FAA has joined with aviation and petroleum industry stakeholders to work toward transitioning to lead-free aviation fuels for piston-engine aircraft by the end of 2030. The Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative will expand and accelerate government and industry actions and investments as well as establish the necessary policies and activities to permit both new and existing general aviation aircraft to operate lead-free, without compromising aviation safety and the economic and broader public benefits of general aviation.

We recognize that this is very ambitious, and each of the organizations involved are fully committed to EAGLE's success with work well underway. A key component of the EAGLE initiative will include an assessment of airport infrastructure needed to foster distribution of any certified and commercially viable replacement unleaded fuel or fuels.

The importance of this initiative to general aviation and U.S. general aviation infrastructure cannot be overstated. There are more than 13,000 different airports which service the roughly 170,000 piston engine general aviation fleet. While we have been working to find a safe high-octane unleaded avgas for some time, we expect the Environmental Protection Agency to move forward with an endangerment finding this year which will trigger regulatory activity to ban leaded avgas. The clock is ticking, and we need to move quickly so that manufacturers have time to design, develop, certify, and build products that can operate safely on whichever unleaded fuel

or fuels reach the market. In the interim, the safety and viability of general aviation will be dependent on continuing the provision of 100 low lead avgas at airports until an unleaded solution is identified and widely available.

The EAGLE initiative launched in February of this year. In March, all interested stakeholders participated in a kick-off meeting to discuss and guide EAGLE's efforts. We had a second stakeholder meeting last month to review progress and solicit engagement from all interested parties, and a third stakeholder meeting is being planned for mid-November. Working groups will meet throughout the year, and we expect to have at least three large stakeholder meetings each year to review progress and solicit additional input. In addition, at this year's EAA AirVenture show in Oshkosh, Wisconsin, governmental and industry leaders will participate in a panel discussion to give an overview of the initiative to all interested attendees and media. This type of outreach is critical given the breadth and scope of this initiative and its importance.

Progressing Aviation Sustainability

GAMA's membership is also committed to sustainability efforts. In 2009, GAMA and the International Business Aviation Council (IBAC) jointly announced the Business Aviation Commitment on Climate Change (BACCC)[3], a program to address the industry's carbon emissions, through three main objectives:

- Reducing CO_2 emissions 50 percent by 2050 relative to 2005;
- Improving fuel efficiency 2 percent per year on average from 2010 until 2020; and
- Achieving carbon-neutral growth from 2020.

[3] https://gama.aero/wp-content/uploads/GAMA-IBAC-Joint-Position-on-Business-Aviation-Tackling-Climate-Change-1.pdf

The industry achieved a 1.9 percent annual improvement in fuel efficiency on average since 2010, in line with our goal of a 2 percent improvement. At the time the BACCC was released, business aviation had already seen a 40 percent improvement in the fuel efficiency of our aircraft over the past 40 years.[4] The industry recently evaluated progress on meeting these goals and found that mainly through technology improvements and alternative fuels we are on track to meet the long-term goal of reducing CO_2 emissions by 50 percent in 2050 relative to 2005 levels.

After reviewing our progress toward meeting these objectives, the business aviation community committed itself to more aggressive goals. In October 2021, a renewed effort to address climate change was announced with an updated goal of net-zero carbon emissions by 2050.[5] The three primary objectives were also refreshed and include:

- Achieve net-zero carbon emissions by 2050.
- Continue to improve fuel efficiency 2 percent per year on average from 2020 to 2030.
- Commit to carbon-neutral growth beyond 2020.

We are also strong proponents of current FAA programs such as the Continuous Lower Energy, Emissions, and Noise (CLEEN) Program as well as the Aviation Sustainability Center (ASCENT). By way of background, CLEEN is a cost-sharing effort with industry which aims to accelerate technology maturation that will reduce noise, emissions, and fuel burn and enable the aviation industry to expedite integration of these technologies into current and future aircraft. ASCENT is a coalition of 16 leading U.S. research universities and more than 60 private sector stakeholders conducting research to reduce aviation's environmental impact. These two

[4] https://gama.aero/wp-content/uploads/GAMA-IBAC-Joint-Position-on-Business-Aviation-Tackling-Climate-Change-1.pdf
[5] https://ibac.org/app/ibac/files-module/local/documents/Declaration%20on%20NZE%202050%20210922%20Final.pdf

partnerships have made significant contributions to address climate change within aviation and we look forward to leveraging their work further.

GAMA is also supportive of efforts to accelerate the uptake, distribution, and use of sustainable aviation fuels (SAF) through a blenders tax credit as well as a grant program to facilitate the production, transportation, or storage of SAF. We are also encouraged by work on legislation that proposes a grant program, with 30 percent of grants going to entities focused on developing, demonstrating, or applying low-emission aviation technology, and 70 percent of the funding dedicated to producing, transporting, or storing SAF.

In addition, we believe policymakers should build and expand upon existing airport programs to address future aircraft development and allow more communities to benefit from low emission technologies. Specifically, a focus on issues like airport infrastructure needs, operations, maintenance, ground support, and emergency preparedness to facilitate these technologies will be critical and merit consideration. Clarifying existing Airport Improvement Program (AIP) eligibility and/or expanding the Voluntary Airport Low Emissions (VALE) program's eligibility as well as possible funding needs should be evaluated as we move to the airport of the future that will help facilitate further economic and environmental benefit of new propulsion and other technologies.

Facilitating Advanced Air Mobility

It is very encouraging to see Congress placing a priority on the growth of advanced air mobility (AAM). We are on the cusp of transforming the future of human flight with the introduction of

electric and hybrid powered aircraft into the national airspace system. The support of Congress will be instrumental in the emergence of AAM and its facilitation of additional transportation options, job creation, economic growth, further environmental sustainability, and advancement in aerospace technology. Through proper planning and infrastructure preparation, and close cooperation with the FAA on enabling rulemaking, we can lead the way in this promising new sector.

GAMA continues to support enactment of the "Advanced Air Mobility Coordination and Leadership Act" and value the leadership of Vice-Chair Sharice Davids (D-KS) and Ranking Member Garret Graves (R-LA) in moving this forward. Passage this year of the legislation will allow for valuable work and input to be undertaken in the coming months that could help inform the FAA reauthorization legislation next year and develop critical policies to uplift the future of AAM.

We also support "The Advanced Aviation Infrastructure Modernization (AAIM) Act" sponsored by Chair Rick Larsen (D-WA) and Ranking Member Garret Graves (R-LA). As these vehicles move through the certification process, concurrent planning for their infrastructure needs should be contemplated to facilitate the needed local planning and infrastructure to prepare for future operations, and the AAIM Act is intended to encourage this collaboration. This is also increasingly relevant as regulators and industry work to define consensus standards on vertiports which would serve as an additional infrastructure capability that is envisioned for use by AAM aircraft.

Recently, the FAA shared with AAM applicants a shift in the certification process pathway for AAM aircraft. GAMA and its member companies have expressed concerns about what this decision might mean for type certification and operational approvals, and we continue to engage with the FAA to understand and mitigate the implications of this decision. One significant area, given the new FAA pathway, is the development and publication of a Special Federal Airworthiness Regulation (SFAR), which is critical to enabling civil AAM operations and pilot licensing. The FAA has committed to completing the SFAR by the end of 2024 and it is important that they deliver on this timeline. To accomplish this, FAA must work in close collaboration with industry stakeholders as well as other government agencies involved in the rulemaking process. It is our hope that Congress will conduct oversight and hold the FAA accountable for meeting its stated timelines.

Finally, GAMA is concerned about delays in naming advanced air mobility representatives to the FAA's Advanced Aviation Advisory Committee (AAAC). This past year, the FAA made the decision to evolve the charter and activities of the former Drone Advisory Committee into the AAAC and incorporate AAM into their deliberations. Critical to this change was the FAA commitment to approaching equal representation from the advanced air mobility sector to the AAAC since AAAC overall is currently lacking in such representation. We would appreciate any oversight the Subcommittee can provide in this area.

Managing and Coordinating Spectrum Use

Our membership utilizes spectrum and supports efforts to ensure its availability to meet aviation demands and satisfy operational and safety needs. The clear lack of coordination amongst

industry and government stakeholders to consider all impacts of spectrum use and facilitate desired outcomes negatively impacts aviation and broader stakeholders, including those in the telecommunications sector seeking to deploy and utilize spectrum. Our belief is there is merit in stronger intergovernmental coordination and consultation to ensure that the full views of the Department of Transportation and FAA, are considered and addressed moving forward. This, coupled with increased dialogue with the aviation sector is essential to ensure safety and operations during the deployment of new spectrum.

Conclusion

In closing, on behalf of GAMA and our membership, I want to thank Chair Larsen and Ranking Member Graves for convening this hearing. It is an exciting and transformative time for general aviation which holds the promise of safety, jobs, innovation, sustainability, and competitiveness benefits. GAMA looks forward to working with you to help ensure this progress especially as we look towards FAA reauthorization in 2023.