



COMMENTS OF THE ACADEMY OF MODEL AERONAUTICS

PS Docket No. 26-189

Proposed Restrictions on the Importation and Marketing of Certain Foreign-Produced Military-Grade UAS and UAS Critical Components

The Academy of Model Aeronautics (AMA) appreciates the opportunity to provide comments regarding the Federal Communications Commission's (Commission or FCC) proposal in DA 26-758 concerning the continued importation and marketing of certain previously authorized foreign-produced unmanned aircraft systems ("UAS") and UAS critical components that are included on the FCC Covered List and that meet the Commission's proposed definition of "military-grade."

AMA supports the federal government's responsibility to protect national security and recognizes the legitimate concerns associated with advanced UAS technologies that may present national-security, surveillance, communications, or other risks. However, AMA is concerned that the proposed framework could unintentionally encompass traditional model aircraft and legitimate recreational, educational, competitive, and commercial activities that bear little or no relationship to the advanced UAS technologies the proposed restrictions are intended to address.

AMA represents 150,000 recreational and educational model aviation enthusiasts and has served the model aviation community for nearly a century. AMA members fly traditional model aircraft for recreation, education, competition, research, and other legitimate purposes. AMA also supports thousands of local model aviation clubs, educators, youth programs, competition pilots, retailers, manufacturers, and other participants who collectively form a significant and longstanding component of the American aviation community.

A substantial portion of AMA's members fly traditional model aircraft that are fundamentally different from the advanced UAS contemplated by this proceeding. Traditional model aircraft are designed and built to be flown within the operator's visual line

of sight. They generally do not have internet connectivity, cellular connectivity, autonomous flight capabilities, advanced command-and-control systems, or other sophisticated capabilities associated with modern commercial or military UAS. These aircraft are operated by pilots who maintain direct visual awareness of the aircraft and manually control the aircraft throughout the flight.

AMA has consistently maintained that advanced-capability UAS and traditional model aircraft represent distinct areas of aviation and should be regulated accordingly. This distinction should not be interpreted as opposition to UAS or FPV technology. To the contrary, AMA supports the safe recreational, educational, and innovative use of UAS and FPV systems and recognizes the important role these technologies play in introducing individuals to aviation and developing new skills. Many AMA members safely participate in UAS and FPV activities, and AMA supports these activities through appropriate safety guidance, programming, and educational initiatives, including our FPV guidelines, UAS4STEM program, and support for competitive drone racing.

At the same time, the existence and growing use of more advanced UAS should not result in traditional model aircraft operations being subjected to regulations intended for systems with substantially different capabilities, functions, or risk profiles. Maintaining a clear distinction between these categories allows policymakers to establish appropriate requirements for emerging UAS technologies while preserving the longstanding recreational, educational, and competitive model aviation activities that have been safely conducted for decades.

Traditional model aircraft should therefore not be treated in the same manner as advanced UAS simply because they may share certain individual technologies or because some components may be manufactured overseas. AMA believes the Commission can address legitimate national-security concerns while preserving appropriate access to traditional model aviation by distinguishing aircraft based upon their actual capabilities, design, intended use, and method of operation.

I. Traditional Model Aircraft Are Fundamentally Different from Advanced UAS

Traditional model aircraft existed in the United States even before full-scale aircraft and are an important part of the country's aviation heritage. Although modern model aircraft may incorporate sophisticated electronics, these aircraft remain fundamentally different from networked, autonomous, or military UAS.

A typical traditional model aircraft is controlled directly by a pilot using a radio transmitter and receiver. The pilot provides the commands necessary to control the aircraft, and the

aircraft does not independently determine where it will fly or what it will do. The aircraft is intended to remain within the pilot's visual line of sight, and the pilot is responsible for maintaining situational awareness and controlling the aircraft throughout the operation.

Traditional model aircraft do not rely on internet or cellular connectivity to operate. They are not dependent upon cloud-based command systems, remote internet servers, or persistent network connections. They do not transmit operational data through the internet, receive commands from remote network operators, or independently conduct missions beyond the pilot's visual awareness.

This distinction is important because many of the national-security concerns associated with modern UAS relate to capabilities that traditional model aircraft simply do not possess. These may include autonomous operations, persistent network connectivity, sophisticated surveillance systems, beyond-visual-line-of-sight operations, remote mission management, coordinated autonomous operations, or integration with other networked systems.

The Commission should therefore avoid using broad technical characteristics as substitutes for actual capability. The fact that an aircraft uses a radio, electronic flight-control equipment, a camera, or other modern technology does not, by itself, establish that the aircraft is military-grade.

II. The 55-Pound-or-More Threshold Is Not an Appropriate Proxy for Military Capability

AMA is particularly concerned with the Commission's proposed use of a 55-pound-or-more takeoff-weight threshold as one of the characteristics that could cause a UAS to fall within the proposed military-grade category. The Commission's proposal ties this threshold to the definition of a "small unmanned aircraft" under 14 CFR § 107.3 and Large Model Aircraft under USC 44809.

Weight alone is not an appropriate indicator of whether an aircraft possesses military capabilities.

Traditional model aircraft can be relatively large for many reasons that have nothing to do with military applications. Large-scale model aircraft may be constructed to replicate full-scale aircraft, participate in scale competitions, perform aerobatics, conduct demonstrations, or provide educational opportunities.

Such aircraft weigh 55 pounds or more at takeoff while still being manually controlled, operated within visual line of sight, and lacking internet connectivity, autonomous capabilities, advanced surveillance systems, or other technologies that create the national-security concerns underlying this proceeding.

A large model aircraft with a conventional radio receiver, servos, electronic speed controller, battery, propulsion system, and manually controlled flight system does not become military-grade merely because it reaches a particular weight.

AMA therefore urges the Commission to reconsider whether weight alone is sufficient to establish that an aircraft is “military-grade.” If the Commission retains a weight-based criterion, it should require additional capability-based characteristics demonstrating that the aircraft actually possesses the advanced capabilities that justify national-security restrictions.

III. Batteries and Ordinary Replacement Components

AMA is also concerned about the potential downstream effects of the proposed restrictions on ordinary replacement parts and components essential to traditional model aviation.

AMA is not asserting that the Commission has specifically proposed to prohibit ordinary batteries or each of these individual components. Batteries are not identified as one of the Commission’s seven proposed military-grade categories. Rather, AMA’s concern is that the proposal addresses UAS and UAS critical components, and that uncertainty regarding the scope of that component category could create unintended consequences for the supply chain supporting traditional model aviation.

AMA respectfully requests that the Commission clearly define the scope of the UAS critical-component provision and expressly clarify that ordinary, commercially available components used in traditional model aircraft are not intended to be encompassed by the proposed restrictions merely because they may also be used in a UAS or may be manufactured outside the United States.

Batteries, motors, servos, electronic speed controllers (ESCs), radio transmitters and receivers, flight-control equipment, connectors, propulsion components, and other commonly available parts are essential to the operation and maintenance of traditional model aircraft. These components are widely used across recreational model aviation, education, competition, robotics, and other legitimate civilian applications and, by themselves, do not establish that an aircraft possesses military-grade capabilities.

Batteries are particularly important because they are consumable components that routinely require replacement as a result of normal degradation, age, charge cycles, or damage. Motors, servos, ESCs, receivers, transmitters, and other components likewise require replacement as a result of normal wear, damage, or maintenance.

If access to ordinary replacement components were unnecessarily restricted as a consequence of this proceeding, otherwise lawful aircraft could become increasingly difficult or expensive to maintain and operate. Additionally, it could present safety issues as operators compelled to run degraded or compromised batteries could face hazards, such as fire or structural failure, into an otherwise safe recreational activity.

AMA urges the Commission to distinguish ordinary civilian components from specialized components that present legitimate national-security concerns and to ensure that the final rule does not unnecessarily restrict the availability of batteries, replacement parts, motors, servos, ESCs, radios, or other components commonly used to operate and maintain traditional model aircraft.

IV. UAS Docking Stations

The Commission also proposes to include UAS docking stations within the military-grade category. The proposal describes these as multipurpose systems that enable UAS to land safely, take off, recharge and/or replace batteries, and transfer data and payload.

AMA recognizes that automated aircraft support systems may have legitimate civilian applications. Automated landing, charging, battery replacement, data transfer, and other support functions can improve efficiency and support commercial, agricultural, research, and other civilian operations.

The existence of a docking station or automated support system does not necessarily establish that an aircraft possesses military capabilities.

AMA therefore encourages the Commission to evaluate the actual capabilities of the complete system and its intended use rather than treating the presence of a docking station as an independent proxy for military capability.

harmful or military purposes.

V. Impact on the U.S. Supply Chain

AMA is concerned about the potential impact of the proposed restrictions on the U.S. supply chain.

Importantly, the Commission itself asks commenters to provide information regarding the economic and supply-chain effects of the proposed restrictions and specifically asks whether commenters agree that those impacts would be relatively minor, whether other equipment could fill resulting gaps, and whether trusted domestic alternatives are available.

The recreational model aviation industry relies upon a global network of manufacturers, distributors, retailers, and suppliers to provide aircraft, radios, motors, servos, electronic speed controllers, batteries, replacement parts, and other equipment. Many of these products are manufactured or sourced through international supply chains.

While AMA supports general efforts to replace foreign-sourced components with trusted domestic alternatives, a robust manufacturing infrastructure for specialized hobby electronics currently does not exist within the United States. Consequently, attempting to substitute these parts domestically is not immediately feasible, as the necessary production capacity and supply chains cannot scale to meet the volume required for commercial viability, making domestic production economically unsustainable for the specialized hobby market.

Broad or unclear restrictions could disrupt established supply chains, reduce product availability, increase costs for consumers and businesses, and make it more difficult for retailers and distributors to maintain adequate inventories and provide replacement parts.

The effects could extend well beyond the manufacturer of a particular aircraft. A model aviation retailer may rely upon a distributor, which relies upon a foreign manufacturer, which relies upon multiple component suppliers. Restricting one product or component can therefore create a domino effect throughout the supply chain.

A retailer may continue to have an aircraft available for sale but be unable to obtain a replacement electronic speed controller, motor, servo, receiver, battery, or other component necessary to keep that aircraft operational. Likewise, a distributor may have established inventory but be unable to replenish that inventory once existing products are sold.

These effects could be particularly harmful to small businesses that serve the recreational aviation community. Small specialty retailers often lack the purchasing power, capital, and supplier relationships necessary to rapidly replace an established international supply chain with domestic alternatives.

The Commission should not assume that a domestic manufacturer exists simply because a product category has some domestic production. A domestic alternative must also be available in sufficient quantity, at a comparable price, with comparable performance, and through a supply chain capable of supporting consumers and businesses.

VI. Impact on Retailers and Small Businesses

The proposed restrictions could have significant consequences for U.S. retailers and distributors.

Retailers must make purchasing and inventory decisions months in advance. If the regulatory status of a product is uncertain, a retailer may be reluctant to purchase inventory even before a prohibition becomes effective.

This creates a potential economic impact that goes beyond products that are ultimately prohibited. Regulatory uncertainty itself can cause businesses to discontinue products, reduce inventory, cancel orders, or avoid entering into long-term supplier relationships.

Small businesses are particularly vulnerable to these effects. A large manufacturer may have the resources to redesign products or establish alternative supply chains. A small hobby shop may not.

AMA urges the Commission to consider the cumulative effect of these decisions on the small businesses that manufacture, distribute, sell, repair, and support recreational model aircraft.

VII. Impact on International Competition and U.S. Drone Racing

AMA is deeply concerned about the potential impact on American participation in international model aviation and drone racing competitions.

The United States has a long and successful history of participating in international model aircraft competitions. American pilots and teams compete against drone pilots from around the world, often using specialized equipment that is developed and manufactured through global supply chains.

If U.S. competitors are unable to obtain commercially available aircraft, components, radios, flight controllers, motors, electronic speed controllers, batteries, or other equipment that remains available to competitors in other countries, American competitors could be placed at a significant disadvantage.

This is particularly concerning in drone racing, where equipment evolves rapidly and small changes in aircraft performance, control systems, propulsion, and electronics can have a meaningful impact on competitive results.

If an American pilot is required to compete using older or less capable equipment while competitors elsewhere continue to have access to the latest commercially available technology, the United States could lose its competitive position.

The consequence would not simply be an inconvenience to individual hobbyists. It could affect American teams, pilot development, youth programs, sponsors, event organizers, and the broader competitive aviation community.

AMA urges the Commission to carefully consider whether the proposed restrictions could place American competitors at a technological disadvantage relative to competitors in the rest of the world.

VIII. Impact on Education, STEM, and Workforce Development

AMA is further concerned about the consequences for education.

Model aviation and UAS technology are increasingly important tools for STEM education, vocational training, engineering programs, flight instruction, robotics, and workforce development.

Schools, universities, youth programs, and other educational organizations use aircraft and UAS platforms to teach students about:

- Aerodynamics
- Physics
- Electronics
- Robotics
- Computer science
- Programming
- Engineering
- Radio communications
- Flight control
- Manufacturing
- Aviation safety
- Problem-solving

Many educational institutions operate with limited budgets and depend upon commercially available, reliable, and affordable equipment.

If commonly available UAS platforms or components become unavailable because of broad importation or marketing restrictions, educators could be left without appropriate platforms for hands-on instruction. Requiring schools to purchase substantially more expensive alternatives could reduce participation and limit opportunities for students.

This could produce an unintended and counterproductive result: the United States could restrict access to the very technologies that American students need to learn in order to become the engineers, pilots, technicians, manufacturers, and aviation professionals of the future.

AMA therefore urges the Commission to consider the educational and workforce-development consequences of restricting access to commercially available UAS platforms

and components that do not possess the advanced capabilities that are the intended focus of this proceeding.

IX. Impact on AMA Clubs and Community Programs

AMA's network of local clubs provides an important pathway for individuals to learn about aviation and safely participate in model aviation.

Clubs frequently provide aircraft and equipment for introductory flights, training, youth activities, competitions, demonstrations, and educational programs. Clubs may also maintain shared equipment that is used by multiple members.

Restrictions that make aircraft or replacement components more expensive or difficult to obtain could make it more difficult for clubs to provide these opportunities.

This is particularly important for young people and newcomers. Many individuals are introduced to aviation through a local model aircraft club, where they can receive instruction and experience flight before investing in their own equipment.

If equipment becomes significantly more expensive or unavailable, the barrier to entering the hobby may increase. That could reduce participation in model aviation and, over time, reduce the number of young people exposed to aviation, engineering, and aerospace.

X. Existing Aircraft, Repairs, Maintenance, and the Secondary Market

AMA recognizes that the Commission's proposal concerns the continued importation and marketing of covered equipment and does not propose to prohibit the continued use or operation of equipment that has already been purchased.

AMA nevertheless urges the Commission to provide clear guidance regarding existing aircraft and equipment, particularly concerning repairs, maintenance, replacement components, and lawful secondary-market activity.

Traditional model aircraft can remain in service for many years, and some aircraft are passed from one generation of hobbyists to another. A model aircraft may be repaired, modified, upgraded, sold, transferred, or donated numerous times throughout its useful life.

AMA asks the Commission to clarify that the final action does not inadvertently interfere with:

- Continued ownership of lawfully acquired aircraft
- Continued operation of existing aircraft
- Repair and maintenance

- Replacement of worn or damaged components
- Lawful transfers between individuals
- Secondary-market transactions
- Club lending and shared use
- Educational use of existing equipment
- Restoration and preservation of traditional model aircraft

The secondary market is particularly important because many hobbyists acquire aircraft and components from other hobbyists rather than purchasing new equipment from a retailer. Swap meetings and other events built around the secondary market are also long-standing community traditions that preserve aviation history and provide opportunities for generations of pilots to exchange expertise and contribute to a greater culture of community safety.

XI. Need for Clear Definitions and Regulatory Certainty

AMA urges the Commission to provide clear, objective, and understandable definitions for any products subject to the final rule.

Ambiguous definitions can have consequences even when a particular product is ultimately determined not to be prohibited.

Manufacturers, distributors, and retailers may discontinue products simply because they are uncertain whether those products will be permitted in the future. Consumers may likewise avoid purchasing products because of uncertainty about whether replacement parts will remain available.

The Commission should therefore ensure that businesses can readily determine whether a product is covered without requiring extensive legal or technical analysis.

Clear definitions will also reduce the risk of inconsistent enforcement and help businesses make informed purchasing, inventory, manufacturing, and investment decisions.

XII. Need for a Specific Exemption for Traditional Model Aircraft

AMA strongly recommends that the Commission establish an explicit exemption or other clear exclusion for traditional model aircraft that do not possess the capabilities that the Commission is seeking to address.

At a minimum, AMA recommends consideration of an exclusion for aircraft that:

- Are designed and operated within the pilot's visual line of sight
- Are manually controlled by a human operator

- Do not rely upon internet or cellular connectivity for operation
- Do not possess autonomous beyond-visual-line-of-sight capabilities
- Are not designed for military applications
- Are not designed to carry or employ weapons
- Do not possess sophisticated networked command-and-control capabilities
- Are intended for recreational, educational, competitive, or other legitimate civilian purposes

Such an exemption would allow the Commission to address legitimate national-security concerns while avoiding the unintended regulation of traditional model aviation.

XIII. Need for a Component Clarification

AMA similarly recommends that ordinary components used in traditional model aircraft not be subject to the proposed restrictions under the Commission's applicable criteria for covered military-grade equipment.

This should include commonly available:

- Batteries
- Motors
- Servos
- Electronic speed controllers
- Radio transmitters
- Radio receivers
- Standard flight-control equipment
- Connectors and wiring
- Propulsion components
- Other ordinary replacement and maintenance components

The mere fact that a component may be used in a UAS should not, by itself, cause an otherwise ordinary civilian component to be treated as military-grade.

XIV. Grandfathering and Protection of Lawfully Acquired Equipment

Because the Commission already proposes that continued use and operation of previously purchased covered equipment would not be affected, AMA supports preserving that protection in any final action.

To the extent the Commission adopts any additional restrictions or interpretations that could affect existing equipment, AMA strongly recommends that lawfully acquired equipment remain lawful to own and operate.

The Commission should also preserve the ability of owners to maintain and repair those aircraft and obtain ordinary replacement components necessary to keep them operational, consistent with the scope of any final rule.

XV. Adequate Transition Period

AMA also urges the Commission to provide an adequate transition period before any prohibition becomes effective.

The Commission is specifically seeking comment regarding implementation considerations, including existing inventory, products already in the supply chain, shipments en route to the United States, and products subject to executed distribution, marketing, or sales agreements.

Manufacturers, distributors, retailers, educational institutions, competition pilots, and consumers need sufficient time to understand the final requirements and make appropriate adjustments.

Businesses may need to:

- Review existing inventory
- Cancel or modify purchase orders
- Identify alternative suppliers
- Establish new supplier relationships
- Modify product lines
- Notify customers
- Adjust contracts
- Develop alternative sourcing strategies

A transition period would allow the market to adjust in an orderly manner and reduce unnecessary economic disruption.

XVI. National Security Can Be Protected Without Unnecessarily Restricting Traditional Model Aviation

AMA recognizes that the federal government has a legitimate responsibility to address UAS technologies that create national-security concerns.

AMA does not oppose appropriately targeted restrictions on equipment that is genuinely designed for military applications or possesses capabilities that create legitimate national-security risks.

The concern is that broad technical definitions can unintentionally capture ordinary civilian technologies and traditional model aircraft that do not present those same risks.

The Commission can achieve its national-security objectives more effectively by focusing on actual capability rather than relying solely upon characteristics such as weight, the presence of a particular civilian sensor, or the ability of multiple aircraft to fly in a coordinated manner.

A traditional model aircraft flown manually by a pilot within visual line of sight should not be treated as equivalent to an autonomous, network-connected, military-capable UAS simply because both are aircraft without an onboard pilot.

XVII. Conclusion

AMA supports the federal government's responsibility to protect national security and understands the importance of addressing legitimate threats associated with advanced UAS technologies. However, those efforts should be carefully targeted and should not unnecessarily restrict traditional model aviation or the businesses, educators, athletes, clubs, retailers, manufacturers, and consumers who participate in and support it.

Traditional model aircraft are fundamentally different from advanced military and network-connected UAS. They are designed and built for recreational, educational, and competitive purposes; are intended to be operated within the pilot's visual line of sight; are manually controlled; and lack internet connectivity, cellular connectivity, autonomous capabilities, sophisticated networked command-and-control systems, and other advanced capabilities associated with modern military and commercial UAS.

AMA respectfully urges the Commission to:

1. Clearly distinguish traditional model aircraft from advanced UAS based upon actual capabilities, design, and intended use;
2. Reconsider the use of a 55-pound-or-more takeoff-weight threshold as an independent indicator of military-grade capability;
3. Ensure that ordinary recreational model aircraft are not inadvertently classified as military-grade UAS;
4. Carefully distinguish civilian applications of thermal imaging and LiDAR from military applications;
5. Distinguish civilian coordinated flight and multi-UAS light shows from autonomous or military swarming;

6. Carefully evaluate whether UAS docking stations should independently constitute evidence that a system is military-grade;
7. Clarify that ordinary replacement components used in traditional model aviation, including batteries, motors, servos, electronic speed controllers, radios, and other commonly available components, are not unnecessarily swept into the restrictions;
8. Carefully evaluate the potential impact of the proposal on U.S. manufacturers, distributors, retailers, small businesses, and international supply chains;
9. Consider the competitive disadvantage that restrictions could impose on American model aircraft and drone racing competitors who must compete against pilots in other countries with access to equipment that may no longer be available in the United States;
10. Consider the impact on schools, universities, STEM programs, youth organizations, educators, and workforce-development programs that depend upon affordable and commercially available UAS and model aviation platforms;
11. Consider the impact on AMA clubs and community programs that use model aircraft to introduce young people and newcomers to aviation;
12. Preserve the continued lawful ownership and operation of equipment already purchased, consistent with the Commission's proposal;
13. Provide clear guidance protecting ordinary repair, maintenance, replacement, and secondary-market activities involving traditional model aircraft;
14. Establish a clear exemption or exclusion for traditional model aircraft that are manually controlled, operated within visual line of sight, and lack advanced autonomous, networked, or military capabilities;
15. Establish a clear exemption or exclusion for ordinary components used in traditional model aviation unless those components independently satisfy the applicable criteria for covered military-grade equipment;
16. Consider the availability, cost, and capacity of domestic alternatives before concluding that economic and supply-chain impacts will be minor; and
17. Provide an adequate transition period to allow manufacturers, distributors, retailers, educators, competition pilots, clubs, and consumers to adjust to any new requirements.

AMA believes that national security and recreational model aviation are not mutually exclusive. The United States can protect its national-security interests while preserving the longstanding American tradition of model aviation, supporting STEM education and workforce development, maintaining healthy U.S. businesses and supply chains, and allowing American athletes and recreational pilots to compete on a level playing field with participants around the world.

AMA appreciates the Commission's consideration of these comments and respectfully requests that the Commission carefully consider the substantial differences between traditional model aircraft and advanced UAS before adopting any final restrictions.

Respectfully Submitted.

A handwritten signature in black ink, appearing to read "Tyler Dobbs". The signature is fluid and cursive, with the first name "Tyler" and last name "Dobbs" clearly distinguishable.

Tyler Dobbs
Executive Director
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