

No. 16-323

IN THE
Supreme Court of the United States

AVCO CORPORATION,

Petitioner,

v.

JILL SIKKELEE,

Respondent.

**On Petition for a Writ of Certiorari
to the United States Court of Appeals
for the Third Circuit**

**BRIEF OF *AMICUS CURIAE* GENERAL
AVIATION MANUFACTURERS
ASSOCIATION, INC. IN SUPPORT OF
PETITIONER**

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CORPORATE DISCLOSURE STATEMENT

Amicus curiae, General Aviation Manufacturers Association, Inc. (“GAMA”), is a not-for-profit trade association representing the interests of the general aviation industry. It has no publicly owned parent corporation, subsidiary, or affiliate, nor has it issued shares or debt securities to the public. No publicly held company owns 10% or more of any stock in GAMA.

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INTEREST OF *AMICUS CURIAE*¹

Amicus curiae GAMA is an international trade association representing over ninety of the leading manufacturers of general aviation aircraft, engines, avionics, and components, and operators of maintenance facilities, fixed base operators, aircraft fleets, and pilot and technician training facilities. General aviation encompasses all civilian flying except scheduled commercial transport. GAMA's members make nearly all of the general aviation aircraft flying today. Lycoming Engines, a GAMA member company, is a division of Petitioner AVCO Corporation.

Founded over forty-five years ago, GAMA's mission is to foster and advance the welfare, safety, interests, and activities of general aviation and general aviation manufacturers in the United States and abroad.

GAMA's decades-long expertise in design, manufacturing, and certification of aircraft and aircraft components under the Federal Aviation Administration ("FAA") regulatory framework may be useful to the Court in considering whether to grant *certiorari* on petitioner's question presented, which raises crucial issues of aviation safety to the flying public.

¹ Counsel of record received timely notice of the intention to file this brief, and all parties have consented to its filing. Letters of consent to the filing of this brief executed by all parties have been lodged with the Clerk of the Court pursuant to Rule 37.2. In accord with Rule 37.6, *Amicus* states that no monetary contributions were made for the preparation or submission of this brief, and this brief was not authored, in whole or in part, by counsel for a party.

SUMMARY OF ARGUMENT

This case presents the issue of whether FAA's comprehensive regulatory scheme for aviation safety—including the design and manufacture of aviation products—completely preempts ad hoc regulation by lay jurors defining state design standards through product liability suits.

1. Congress intended FAA to be the sole arbiter of safety in the aviation industry. FAA has fulfilled this role through a comprehensive framework that regulates aviation design and manufacturing from the very beginning to the end. The court of appeals incorrectly concluded that FAA's regulatory framework is only procedural, and constitutes minimum safety standards that states can supplement. To the contrary, FAA has issued exhaustive substantive regulations governing all aspects of aviation safety, including federal certification of the design and manufacture of aviation products. FAA also monitors the entire service lives of approved products, and retains ultimate authority over any design changes. FAA has consistently stated that its all-encompassing regulatory framework preempts the field of design safety standards.

FAA's certification process provides the uniformity and predictability necessary for the transportation infrastructure of the United States. This uniform regulation ensures the holistic safety of aviation products from an engineering standpoint, and brings to bear a knowledge of the entire industry and of past experiences. Uniform regulation has also proven highly successful: the U.S. aviation industry is the

safest, largest, most diverse, and most technologically innovative in the world.

2. This Court has long recognized the importance of the issue of preemption relating to inter-state industries. The preemptive effect of FAA's regulations is likewise critically important to the aviation industry, which this Court has recognized is uniquely federal and transcends state boundaries. *See City of Burbank v. Lockheed Air Terminal, Inc.*, 411 U.S. 624, 633–34 (1973) (citing *Northwest Airlines, Inc. v. Minnesota*, 322 U.S. 292, 303 (1944)).

The decision below allows an expert-based, uniform regulatory framework to be second-guessed by lay jurors on a piecemeal basis in fifty states, through the narrow prism of tort law. Conflict preemption cannot harmonize inconsistent state law safety standards. The aviation industry will be left with the impossible task of attempting to comply with varying state standards on top of a federal scheme that places design control singularly in the hands of FAA. Undermining FAA's uniform regulatory scheme for the design and manufacture of aviation products jeopardizes safety and the viability of the aviation industry, which millions of Americans rely upon for business, leisure, and medical needs.

ARGUMENT

I. FAA REGULATION OF SAFETY IN AVIATION DESIGN AND MANUFACTURING IS COMPREHENSIVE AND EXCLUSIVE

A. Congress intended to create a single federal regulatory framework for the design and manufacturing of aviation products

Aviation is unique and transcends state boundaries. It must be regulated uniformly. Recognizing this, Congress created FAA with the intent that it be the sole regulatory body and arbiter of safety in the aviation industry. *See* Air Commerce Act of 1926, Pub. L. No. 69-254, § 3(b), (f), 44 Stat. 568, 569–70, (1926); U.S. Dep’t of Commerce, Air Commerce Bulletin, vol. 1, no. 1, at 1 (July 1, 1929) (“Inasmuch as there can be but one standard of airworthiness, . . . it would seem obvious that State laws dealing with regulation should provide requirements identical with those of the Federal law.”); Federal Aviation Act of 1958, Pub. L. No. 85-726, § 1108(a), 72 Stat. 731, 798 (1958) (The federal government exercises “complete and exclusive national sovereignty in the airspace of the United States.”).

FAA has fulfilled this regulatory duty assigned by Congress by creating sweeping certification standards for the design and manufacturing of aircraft, aircraft engines, aircraft propellers, and other certain aviation products (collectively, “products”). 49 U.S.C. § 44704(a); Type Certificates, 14 C.F.R. ch. I, subch. C, § 21, subpt. B. Through FAA’s certification processes, the Agency works with

manufacturers throughout the design and manufacturing process to ensure that products are properly airworthy before they ever reach the flying public, and remain safe once in service. Congress has affirmed that FAA's "certification means that [a] product meets world-wide recognized standards of safety and reliability." The Federal Aviation Reauthorization Act of 1996, Pub. L. No. 104-264, § 271(9), 110 Stat 3213, 3239 (1996).

FAA has consistently echoed Congress's intent, stating that its regulations completely occupy the field of safety in aviation design and manufacturing. As the Agency stated in a brief solicited by the court of appeals in this case, FAA "has specialized expertise in the regulation of aircraft safety, and the Agency is uniquely qualified to assess the impact of state law tort suits on aircraft manufacturers and the efficacy of federal regulations." Brief for Fed. Av. Admin. as *Amicus Curiae* Supporting Respondents, *Sikkelee v. Precision Airmotive Corp. et al.*, No. 14-4193, 2015 WL 5665724, at *9 (3d Cir. 2015). FAA further indicated:

It cannot be disputed that the federal government's presence in the field of aircraft safety is pervasive. . . . The structure of the Federal Aviation Act confirms the federal government's occupation of the field of substantive safety standards by establishing an all-encompassing federal regulatory framework and directing the Secretary to issue regulations setting safety standards for every facet of air safety and aircraft design. . . . The field preempted by the Federal Aviation Act thus extends broadly to all aspects of aviation safety

and includes product liability claims based on allegedly defective aircraft and aircraft parts by preempting state standards of care.

Id. at *7 (emphasis added).

FAA also advanced this position in an *amicus* brief filed in *Cleveland v. Piper Aircraft Corp.*, No. 91-2065, 1992 U.S. 10th Cir. Briefs LEXIS 1 at *9:

As an initial matter, the very nature of the regulated field—the prescription of safety standards for aircraft moving in or affecting interstate commerce—is so inherently federal in character that state law must give way or risk interfering with the discharge of a uniquely federal function. A plane’s utility arises out of its ability to traverse great distances at great speeds. That utility would be seriously impaired if a plane were subject to different and potentially conflicting standards whenever it crossed a state boundary.

Thus, for at least twenty-five years, FAA has consistently maintained that its design and manufacturing standards preempt state standards.

B. Aviation product manufacturers are subject to a comprehensive federal regulatory framework that completely occupies the field of design safety standards

Contrary to the court of appeals’ conclusion, FAA regulations address not only procedural requirements for FAA approvals, but also specific and general substantive standards for design, manufacture and performance to ensure a product is safe for operation and remains that way. *See* 14 C.F.R. 23, 25, 27, 29,

33, 35 (prescribing substantive design and performance standards).

The court below relied heavily on its mistaken belief that Congress intended FAA's regulations to be minimum safety standards that states could supplement. In actuality, Congress instructed FAA to issue the minimum standards required in the interest of safety to govern the design and manufacture of aviation products. 49 U.S.C. § 44701(a). Congress used the term "minimum" to limit the degree of FAA's control over responsible manufacturers to what was necessary for public safety. The phrase evidences an intent to prohibit unduly burdensome regulation, across all levels of government, not Congress's intent to accommodate supplemental state regulation. In other words, Congress created a balance wherein FAA exercises full responsibility and authority over aviation design and manufacturing safety standards, while leaving room for innovation and creativity.

Far from minimum safety standards, FAA regulations cover every aspect and foreseeable issue related to aircraft design and manufacturing—including but not limited to materials, workmanship, construction, testing, structural characteristics, flight performance, systems and equipment, operating procedures and limitations, markings and placards, and flight and maintenance manuals. Indeed, Congress has recognized that aviation products are regulated "to a degree not comparable to any other" industry. H.R. Rep. No. 103-525(II) (1994), *as reprinted in* 1994 U.S.C.C.A.N. 1644, 1647. FAA's regulations are implemented through certifications that begin before a product is made, and continue

through the life of the product. FAA requires certification of product design (type certificate), product manufacturing (production certificate), and aircraft airworthiness (airworthiness certificate), in addition to regulating post-certification maintenance and operations (continued airworthiness). *See* 14 C.F.R. ch. I, subch. C.

1. Design (Type) Certification

Congress empowered FAA to evaluate every aspect of a proposed product relevant to safety. *See* 49 U.S.C. § 44704(a)(1). Accordingly, the decision to approve the design of an aviation product begins and ends solely with FAA. FAA’s regulation of aviation product design begins from a product’s inception, with a comprehensive five-phase design approval (“type certification”) process. *See generally* Certification Procedures for Products and Articles, 14 C.F.R. ch. I, subch. C, § 21; U.S. Dep’t of Transp., Fed. Aviation Admin. Order 8110.4C, *Type Certification* (Mar. 28, 2007), <https://goo.gl/im1aip> (hereinafter “FAA Order 8110.4C”).

In the first phase, before any certification application is even submitted, a FAA project manager communicates with the applicant regarding an initial design concept, providing feedback on the applicable regulatory requirements for the proposed project, and any additional safety considerations the applicant must address. FAA Order 8110.4C, ch. 2-3, at 20.

In the second phase, the applicant submits a formal application, containing technical data including “drawings representing the design, material, specifications, construction, and performance” of the product. *See* Fed. Aviation

Admin. Form 8110-12 (2014 ed.).² FAA assigns a project team with all the relevant technical expertise (*e.g.*, a project manager, engineers, flight test pilots) to work with the applicant through the type certification process. FAA Order 8110.4C, ch. 2-4(b), at 24. FAA also establishes the certification basis for the product, which designates all of the applicable regulations and special conditions for safety that must be met to achieve type certification. *See* 14 C.F.R. §§ 21.16 (“If the FAA finds that the airworthiness regulations . . . do not contain adequate or appropriate safety standards for an aircraft, aircraft engine, or propeller because of a novel or unusual design feature of the aircraft, aircraft engine or propeller, he prescribes special conditions and amendments thereto for the product.”), 21.17.

During the third phase, the applicant submits a detailed certification plan to FAA for approval. This plan explains how the applicant will meet each requirement in the certification basis, including but not limited to the methods the applicant will use to design for and demonstrate compliance (*e.g.*, testing, inspections, analyses). *Id.* § 21.17(a) (stating “an applicant for a type certificate must show that the aircraft, aircraft engine, or propeller concerned meets . . . [t]he applicable requirements of this subchapter that are effective on the date of application for that certificate . . .”).

² In the case of an aircraft engine, the applicant must describe the engine design features, operating characteristics, and operating limitations. 14 C.F.R. § 21.15(c).

Next, the applicant implements the FAA-approved certification plan, working with FAA throughout to conduct extensive engineering and flight tests and analyses, and generate reports to demonstrate design compliance with all applicable requirements. FAA regulations require that testing not only show design compliance, but also performance and operation in service for continued airworthiness. *See, e.g., id.* § 21.35 (describing flight testing requirements for applicants for aircraft type certificates). FAA conducts conformity inspections before tests to ensure conformance to the type design. FAA also (or a designee) may witness all testing, and may request any additional testing. FAA Order 8110.4C, ch. 2-6, at 43; *see also* 14 C.F.R. § 21.33(a) (“Each applicant must allow the FAA to make any inspection and any flight and ground test necessary to determine compliance with the applicable requirements of this subchapter.”). This testing phase consists of thousands of man hours and may take years.

After the applicant generates, substantiates, and documents compliance data, FAA reviews the data, makes an independent finding of compliance for each applicable requirement, and decides whether to issue a type certificate. 14 C.F.R. § 21.21(b) (stating that an applicant is entitled to a type certificate if he submits “the type design, test reports, and computations necessary to show that the product to be certificated meets the applicable airworthiness, aircraft noise, fuel venting, and exhaust emission requirements of this subchapter and any special conditions prescribed by the FAA” and FAA finds that the product meets all applicable requirements); *see also id.* ch. I, subch. C, §§ 23, 25, 27, 29, 33, 34, 35,

36 (prescribing substantive design and performance standards for various aviation products).³

Finally, during the fifth phase, the manufacturer and FAA prepare multiple reports to establish a record of the certification process and compliance with applicable regulations and the foundation for continued airworthiness activities throughout the product's life. *See* FAA Order 8110.4C, ch. 2-7, at 57–63.

After a type certificate is issued, a manufacturer cannot deviate from the approved design without FAA approval. Changes to Type Certificates, 14 C.F.R. ch. I, subch. C, § 21, subpt. D. Even minor changes to type certificated designs that do not appreciably affect airworthiness require FAA approval. *Id.* § 21.93(a) (“A ‘minor change’ is one that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product.”); *id.* § 21.95. Any design change that has any appreciable effect on airworthiness requires an approval process similar to the type certification process. *Id.* § 21.97; FAA Advisory Circular No: 21-51, *Applicant’s Showing of Compliance and Certifying Statement of Compliance*, at 2 (Sep. 28, 2011).

³ The type certificate includes “the type design, the operating limitations, the certificate data sheet [make and model information, including product description and limitations], the applicable regulations . . . with which the FAA records compliance, and any other conditions or limitations prescribed for the product.” 14 C.F.R. § 21.41.

2. Manufacturing (Production) Certification

Before a manufacturer can actually begin manufacturing its newly-certified design, the manufacturer must also obtain a production certificate from FAA authorizing the production of duplicates of the approved design. Production Certificates, 14 C.F.R. ch. I, subch. C, § 21, subpt. G. To obtain a production certificate, an applicant must establish, among other things, a quality system to “ensure[] that each product and article conforms to its approved design and is in a condition for safe operation.” *Id.* § 21.137. Production certificate applicants (and holders) must allow FAA to inspect their operations. *Id.* § 21.140. Before issuing a production certificate, FAA conducts a quality system audit to evaluate whether the applicant’s quality system, organization, and facilities meet FAA requirements. *Id.* § 21.141.

Once a production certificate is issued, FAA Manufacturing Inspection District Offices (“MIDOs”) provide continued oversight to ensure that production certificate holders maintain compliance with FAA regulations. MIDOs conduct regular inspections of manufacturer quality systems, facilities, technical data, manufactured products, and supplier facilities, as necessary. *See id.* § 21.140.

3. Airworthiness Certification

After an aircraft is built, FAA must again certify it as safely manufactured for flight, or “airworthy.” No person may operate a civil aircraft in the United States without a valid airworthiness certificate. *Id.* § 91.203.

FAA only issues an airworthiness certificate if the Agency determines that the specific aircraft conforms to its FAA-approved type design and is in a “condition for safe operation.” *Id.* § 21.183; U.S. Department of Transportation, Federal Aviation Administration Order 8130.2H *Airworthiness Certification of Products and Articles* (Feb. 4, 2015), <https://goo.gl/UdSXnL> (hereinafter “FAA Order 8130.2H”). In order to make this determination, a FAA Aviation Safety Inspector (or authorized representative) conducts a detailed inspection of records and the aircraft to ensure that equipment is properly installed, that it conforms to its approved type certificate, and that it operates properly. *See* FAA Order 8130.2H at 2-15.

4. Maintenance and Operations (Continued Airworthiness)

Federal control over the safety of aviation products continues even after the type certificate, production certificate, and airworthiness certificate have been issued. FAA monitors products throughout their service lives. Holders of type certificates (i.e., manufacturers) are obligated to report to FAA product failures, malfunctions, and defects. 14 C.F.R. § 21.3. Additionally, FAA may at any time re-inspect a product and may amend, modify, suspend, or revoke any part of a certificate if it decides that the action is required in the interests of air safety. *See* 49 U.S.C. § 44709; 14 C.F.R. § 21.181. FAA Aviation Safety Inspectors stationed throughout the country conduct inspections and investigations into, *inter alia*, aircraft and equipment for airworthiness.

The federal regulatory framework places the responsibility for changing a FAA-approved design to correct a safety issue with FAA. If FAA becomes aware of an unsafe condition through inspections, reports, or accident data and it determines said condition is likely to exist or develop in other products of the same design, FAA issues an “airworthiness directive” to correct the unsafe condition. 14 C.F.R. § 39.1 *et seq.*

If a type certificate or production certificate holder learns that a product may be unsafe, FAA regulations require the certificate holder to send data necessary for corrective action to FAA for the Agency to issue an appropriate airworthiness directive. *See id.* § 21.3(f). If FAA finds that design changes are necessary to correct an unsafe condition, the certificate holder must submit appropriate design changes for FAA approval. *Id.* § 21.99.

Airworthiness directives must be complied with for aircraft to be considered airworthy, and thus, to continue to operate in the United States. *Id.* § 39.7. FAA is empowered to investigate and penalize regulatory violations, including issuing civil penalties, seizing aircraft, and taking actions against FAA certificates. *See id.* § 13.1 *et seq.*

5. Accident Investigation

Further evidencing Congress’s intent to fully occupy the field of aviation safety, exclusive federal control also extends to the investigation of aircraft accidents. Unlike motor vehicle accidents, which are investigated by state and local authorities, Congress created an independent federal agency, the National Transportation Safety Board, with *exclusive*

authority over aviation accident investigations. 49 U.S.C. § 1131; *see also* 49 C.F.R. §§ 800.3, 831.2. Indeed, implementing regulations require NTSB to investigate every civil aviation accident in the United States. 49 C.F.R. § 800.3(a).

In conjunction with its investigation mandate, Congress authorized NTSB to take sole custody of any civil aircraft involved in an accident and restrict the movement of that aircraft. *See* 49 U.S.C. § 1134. No other authorities or persons can access an accident aircraft until the federal government completes its investigation. FAA participates in NTSB investigations. *See* U.S. Dep't of Transp., Fed. Aviation Admin. Order 8020.11C, *Aircraft Accident and Incident Notification, Investigation, and Reporting* (Feb. 2, 2010), <https://goo.gl/4IqKAM> (*see* page 1-7); 49 U.S.C. §§ 40113, 44702. It has plenary authority to re-inspect any civil aircraft, and modify, suspend, or revoke any certification of a product based upon its findings. 49 U.S.C. App. § 1441(a)(2); 14 C.F.R. §§ 39.1, 39.3.

6. Other Federal Regulations of Air Safety

FAA's design and manufacturing regulations are an essential part of a comprehensive, uniquely "intensive and exclusive," federal regulatory system intended to establish and preserve safe flight. *City of Burbank*, 411 U.S. at 633 (quoting *Northwest Airlines, Inc.*, 322 U.S. at 303). FAA safety regulations extend beyond product design and manufacturing to encompass the entire aviation realm. All persons involved in maintenance of aviation products (such as mechanics and repairmen),

all persons involved in aviation operations (such as pilots, air dispatchers and air traffic controllers), and all persons involved with aviation training (such as training pilots and training mechanics) must be federally licensed and act in accordance with federal rules. *See* 14 C.F.R. ch. I, subch. D, §§ 61, 63, 65. FAA also defines and controls the airspace in which aircraft operate. 14 C.F.R. ch. I, subch. E. FAA regulations even address objects affecting navigable airspace. *Id.* § 77

In contrast to motor vehicles, which are registered with local motor vehicle bureaus, the federal government also prescribes requirements for registering an aircraft with FAA's Aircraft Registry. *Id.* ch. I, subch. C, § 47. FAA also regulates the identification and marking of U.S. registered aircraft. *Id.* ch. I, subch. C, § 45 (detailing aircraft marks, size, legibility, and location of nationality and registration marks).

C. FAA's role as sole regulator has allowed U.S. aviation to become the safest and best in the world

Although no system can be completely risk-free, FAA's uniform regulation of the U.S. aviation industry has proven highly successful. The cooperation between FAA and industry experts in the development of new aviation products allows for a distinct focus on safety while also fostering innovation in design and manufacturing. As a result, the U.S. aviation industry is the safest, largest, most diverse, and most technologically innovative in the world. It has achieved a level of safety unprecedented for any mode of transportation.

According to the International Civil Aviation Organization's 2016 Safety Report, in 2015, there were 2.8 aviation accidents per one million departures—the lowest rate in recent history—and not a single fatal crash involved a U.S. commercial carrier. See International Civil Aviation Organization, *2016 Safety Report*, at 5 (2016), <https://goo.gl/CztnlZ>. Additionally, NTSB accident data indicates that 2015 had the lowest number of fatal general aviation accidents and the fewest fatalities on record in the United States. NTSB Press Release, *NTSB 2015 Aviation Statistics Show General Aviation Accidents Continue to Decline* (Sept. 22, 2016), <https://goo.gl/Gqnbcf>.

The success of the U.S. aviation system is respected by the international aviation community. Internationally, FAA regulations are considered the “gold standard” for aviation safety and innovation. Foreign governmental bodies overseeing aviation regulation have long copied—nearly word for word—FAA's regulations. See, e.g., Civil Aviation Safety Regulations 1998 (Australia). FAA also has longstanding bilateral agreements with foreign authorities that facilitate the reciprocal airworthiness certification of civil aviation products imported or exported between signatory countries, intended to ensure the highest level of international regulatory cooperation and harmonization in the interest of aviation safety and innovation.⁴

⁴ Allowing state juries to impose different standards of care may impede the United States' compliance with these agreements.

The court of appeals' opinion in *Sikkelee* would impose on the aviation industry fifty state standards, defined by lay juries through the narrow lens of litigation, undermining FAA's success and continued efforts at home and abroad, stifling innovation and jeopardizing safety.

II. THE ISSUE OF FEDERAL PREEMPTION IN AVIATION DESIGN AND MANUFACTURING SAFETY IS CRITICALLY IMPORTANT

A. This Court has long recognized the importance of federal preemption

The issue presented in this case—the scope of federal field preemption in aviation design and manufacturing safety—is one that goes to the heart of federalism. Congress's exclusive authority to regulate interstate transport is fundamental, and Congress's intent to establish a national system for the safe and efficient regulation of aviation must be respected. Although the aviation industry and the federal regulatory regime governing it are unique, the importance of the federal preemption issue presented here is familiar to the Court.

This Court has a long history of addressing important federal preemption issues affecting interstate industries. *See* Note, *New Evidence on the Presumption Against Preemption: An Empirical Study of Congressional Responses to Supreme Court Preemption Decisions*, 120 HARV. L. REV. 1604, 1613–14 (2007) (noting that this Court decided an average of 6 preemption cases *per term* between 1983 and 2003); *see also, e.g., Kurns v. R.R. Friction Prods. Corp.*, 132 S. Ct. 1261 (2012) (holding state law design-defect claims in the locomotive equipment

industry preempted by Locomotive Inspection Act and its implementing regulations); *United States v. Locke*, 529 U.S. 89 (2000) (holding state regulation of marine tankers preempted by the federal government’s comprehensive scheme governing oil tankers); *Napier v. Atl. Coast Line R. Co.*, 272 U.S. 605 (1926) (holding state legislation regulating locomotive equipment was preempted by the Locomotive Boiler Inspection Act). The Court should continue its recognition of the importance of federal preemption, and grant *certiorari* to address the critical issue presented here.

B. *Sikkelee* results in inconsistent, ad hoc regulation contrary to Congressional intent and detrimental to safety

FAA’s regulatory framework requires federal preemption to achieve Congressional safety goals; it cannot coexist with supplementation by or variation among local safety standards. The opinion below in *Sikkelee* would allow for piecemeal, inconsistent regulation by fifty individual states, through lay juries, undermining safety and frustrating Congress’s intent.

1. Lay Juries are Not Proper Regulators of Aviation Safety, Design, and Manufacturing

As described above, FAA administers and enforces its safety regulations through experts, bringing predictability to a complex industry and ensuring safety is at a premium. *Sikkelee* allows this expert-based system to be second-guessed by lay juries and judges—most of whom lack technical or aviation expertise—on a case-by-case basis. Aviation safety is

not improved by allowing lay juries to set safety standards.

Whereas air travel has become part of daily life for many, aerospace engineering remains beyond the knowledge of many even highly-educated lay persons. Further, juries consider the design of a specific part of an aircraft retrospectively, through the prism of tort law, and from the narrow factual standpoint of a specific accident, to determine whether it meets their common law perception of the requisite level and kind of safety. This “review” is not only inappropriate, it leads to decisions that may compromise, rather than enhance, overall safety as well as the viability and efficiency of the national airspace system.

A lay jury determination that a product is defectively designed is based on assumptions about how a specific accident *might* have been prevented. By contrast, FAA makes holistic safety assessments during the type certification of the product and continues to make safety determinations through its continuing airworthiness activities, bringing to bear the Agency’s comprehensive knowledge of the product, its service history, and the aviation industry. FAA employs skilled technicians to work with manufacturers throughout the entire design and manufacturing process, including engineers, aviation safety inspectors, flight test pilots, and chief scientific and technical advisors.

For example, Chief Scientific and Technical Advisors (“CSTA”) are FAA’s primary technical professionals in specialized topics. *See generally* U.S. Dep’t of Transp., Fed. Aviation Admin. Order

8000.80A, *Aviation Safety (AVS) Chief Scientific and Technical Advisor and Senior Technical Specialist (STS) Program* (Aug. 20, 2010), <https://goo.gl/pF9lWG> (hereinafter “FAA Order 8000.80A”). CSTAs use their technical expertise to enable FAA to apply regulatory policy and practices to certify complex technology. FAA Order 8110.4C, ch. 1-7, at 12. A CSTA’s chief responsibility is continued operational safety, including developing rules and regulations, policy guidance, and technical standards to ensure the safety and reliability of products. Candidates for CSTA positions are expected to be nationally recognized in their field, have extensive aviation-related experience, have written widely on their specialty, and have received significant recognitions or honors for their contributions to their field. FAA Order 8000.80A, at 3.

2. Conflict Preemption Will Not Harmonize The Array of Inconsistent State Law Safety Standards

The court of appeals concluded that conflict preemption can resolve the potential for state standards that cannot be reconciled with the federal regulations. Conflict preemption, however, does not resolve the issue of state safety standards which are or may be inconsistent with safety standards in other states.

Aviation manufacturers create products the very purpose of which is to move people and goods between and across states quickly. After a product is manufactured and sold, the manufacturer has little

or no control over where the customer flies the product. Accordingly, the very nature of these products, outside any purposeful action of the manufacturer, subjects them to the laws of most, if not all, of the fifty states. Yet, state design defect standards are not uniform, and can often directly conflict, leaving the aviation industry with the impossible task of attempting to comply simultaneously with varying state standards on top of the detailed and exhaustive uniform federal regulations already in place. *See, e.g.,* David G. Owen, *Toward A Proper Test for Design Defectiveness: "Micro-Balancing" Costs and Benefits*, 75 TEX. L. REV. 1661, 1667–68 (1997).

For example, states apply different tests to determine whether a product was defectively designed. Most state design defect standards are based on some version of either the risk-utility/risk-benefit test and/or the consumer expectations test. The requirements of these tests are quite different. The risk-utility/risk-benefit test asks the fact finder to balance the risks of the product's design against its utility and costs. *Barker v. Lull Eng'g. Co.*, 573 P.2d 443, 455–56 (Cal. 1978). On the other hand, the consumer expectations test asks whether a product meets the reasonable safety expectations of the ordinary consumer. *Id.*

Some states allow causes of action based on both tests. *See, e.g., Webb v. Spec. Elec. Co., Inc.*, 370 P.3d 1022, 1030 (Cal. 2016); *Mikolajczyk v. Ford Motor Co.*, 901 N.E.2d 329, 344 (Ill. 2008). Some states recognize only the risk-utility test. *See, e.g., Reis v. Volvo Cars of N.A.*, 18 N.E.3d 383, 388 (N.Y. 2014); *Prentis v. Yale Mfg. Co.*, 365 N.W.2d 176, 186 (Mich.

1984); *Branham v. Ford Motor Co.*, 701 S.E.2d 5, 14 (S.C. 2010). Still other states allow only the consumer expectations test. *See, e.g., Brown v. Sears, Roebuck & Co.*, 328 F.3d 1274, 1281 (10th Cir. 2003) (Utah); *Delaney v. Deere and Co.*, 999 P.2d 930, 944 (Kan. 2000).

Even states that use the same test for design defect define and apply it differently. For instance, some states require plaintiffs to show a feasible alternative design, *see, e.g., Branham*, 701 S.E.2d at 14, while others do not, *see, e.g., Guilbeault v. R.J. Reynolds Tobacco Co.*, 84 F. Supp. 2d 263, 280 (D.R.I. 2000). Some courts consider the test to be an affirmative defense. *Taggart v. Richards Med. Co.*, 677 F. Supp. 1102, 1103 (D. Colo. 1988). Others use composite tests incorporating elements from both tests. *See, e.g., Potter v. Chicago Pneumatic Tool Co.*, 694 A.2d 1319, 1333 (Conn. 1997) (collecting cases); *Tincher v. Omega Flex, Inc.*, 104 A.3d 328, 401 (Pa. 2014).

The differing applications of differing tests, as interpreted by lay juries, will lead to varying design directives with no way to ensure that state directives do not conflict with one another. Further, the federal regulatory framework does not allow for differing “approved” designs of the same product as it travels over and through the fifty states. Products must conform to one, uniform, and approved type certificate.

Considering the inter-state nature of aviation and the many differences in state design defect tests, manufacturers have no way of knowing to what design standard they will be held. This imposes unnecessary cost and uncertainty on the industry.

As the Ninth Circuit recognized in *Montalvo v. Spirit Airlines*, “Congress could not reasonably have intended an [airplane] on a Providence-to-Baltimore-to-Miami run to be subject to certain requirements in, for example, Maryland, but not in Rhode Island or in Florida.” 508 F.3d 464, 473 (9th Cir. 2007).

Federal field preemption ameliorates this problem by placing the regulation of aviation safety in the sole hands of an expert body specially positioned to handle such a technical and important task, and ensures uniform, safety standards throughout the country. Uniform federal standards provide not only a predictable product from a safety standpoint, but a predictable process for developing and maintaining that product, which is also necessary for safety and innovation.⁵

C. Aviation design and manufacturing is vitally important to the U.S. economy

In addition to undermining safety, the uncertainty surrounding individual state design safety standards defined by lay juries creates limitless exposure to potential liability for manufacturers that would have damaging economic consequences that could destabilize, or even destroy, the industry. A strong aviation industry is vital to the U.S. economy. Although the court’s decision in *Sikkelee* has significant implications for the aviation industry as a whole, *amicus* GAMA represents the general aviation

⁵ Such standards will not leave plaintiffs without a remedy. Violating these federal standards provides consumers with a remedy under state law principles, which are not preempted. This is the proper balance between federal and state interests in the unique field of aviation.

manufacturing industry, and is thus uniquely positioned to discuss its importance to the U.S. economy and transportation infrastructure.

The U.S. general aviation industry is recognized as a world leader. There are more general aviation aircraft in the U.S. than the rest of the world combined. National Research Council, National Academies Press, *Decadal Survey of Civil Aeronautics: Foundation for the Future*, at 1 (2006). According to an economic impact study, in 2013, general aviation supported \$219 billion in total economic output, \$109 billion of GDP, and 1.1 million total jobs in the U.S. PricewaterhouseCoopers, *Contribution of General Aviation to the US Economy in 2013*, at 11 (2015), <https://goo.gl/tIIZqi>. The economic impact of general aviation includes not only manufacturing, but flight operations, maintenance, and destination visitor expenditures. At the national level, each general aviation job supported 3.3 jobs elsewhere in the economy. *Id.* The U.S. aviation manufacturing industry also plays an important role in international trade. In 2013, exports of aircraft and parts reached \$105 billion, \$21 billion of which was general aviation exports. *Id.* at 4.

General aviation is also critical to the transportation infrastructure of the United States. General aviation flight hours average almost twenty-three million per year. Whereas scheduled airlines serve fewer than 500 airports, general aviation aircraft fly to more than 5,000 public airports in the U.S. Over 2,553 of these airports are included in FAA's National Plan of Integrated Airport Systems, which identifies airports that are significant to national air transportation. U.S. Dep't of Transp.,

Fed. Aviation Admin., *Report to Congress: National Plan of Integrated Airport Systems (NPIAS) 2015–2019*, at 6, <https://goo.gl/oiFw7Y> (hereinafter “NPIAS”).

General aviation is also important for farmers and agricultural producers, who use aircraft for surveying and monitoring crops, fighting fires, and applying herbicides, insecticides, or fertilizers. In the United States, approximately 71 million acres of cropland are treated annually through aerial application. National Agricultural Aviation Association, *Fact Sheet: Facts About the Aerial Application Industry* (2010), <https://goo.gl/o2RoAW>.

A struggling general aviation industry will negatively impact the ability of millions of Americans to travel for business, leisure, and medical needs. In some parts of the country, general aviation supports businesses by ensuring timely delivery of high-priority documents and products. NPIAS at 13. In others, general aviation provides the only means of transportation and critical access to products, supplies, emergency and health-care services, firefighting, law enforcement and first responders, and search and rescue for otherwise isolated communities.⁶

In summary, the issue of preemption in aviation design and manufacturing safety is significant to the

⁶ See generally Alliance for Aviation Across America, American Association of State Highway and Transportation Officials, and National Association of State Aviation Officials, *The Impact of General Aviation on State and Local Economies State Reports* (2014), <https://goo.gl/98zAMV>.

U.S. economy and is worthy of the Court's consideration.

CONCLUSION

This Court should grant the petition for *certiorari*.

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