2018 ANNUAL REPORT

General Aviation Manufacturers Association

General aviation is defined as all aviation other than military and scheduled commercial airlines.

General Aviation:

- Includes over 446,000 general aviation aircraft flying worldwide today, ranging from two-seat training aircraft and utility helicopters to intercontinental business jets, of which over 211,000 aircraft are based in the United States and over 136,000 aircraft are based in Europe.
- Supports $219 billion in total economic output and 1.1 million total jobs in the United States.
- Flies over 24.8 million flight hours, of which two-thirds are for business purposes, in the U.S.
- Flies to more than 5,000 U.S. public airports, while scheduled airlines serve less than 400 airports. The European general aviation fleet can access over 4,200 airports.
- Is the primary training ground for most commercial airline pilots.

GAMA

GAMA is an international trade association representing more than 100 of the world's leading manufacturers of general aviation airplanes and rotorcraft, engines, avionics, components, and related services. GAMA's members also operate repair stations, fixed-based operations, pilot and maintenance training facilities, and manage fleets of aircraft. For more information, visit GAMA's website at www.GAMA.aero and look for us on Facebook, Twitter, Instagram, LinkedIn, and YouTube.

Welcome from GAMA's Chairman

As GAMA's Chairman this year, I'm proud to present to you our annual report, which provides an in-depth look at how the industry performed in 2018, gives an update on GAMA's critical work last year, and includes important industry data for Canada, Europe, the United States and several other regions around the globe.

Thanks to the association and its members, we've made significant strides in our advocacy with aviation authorities and regulators. This is critical as the general aviation manufacturing and maintenance industry is a valuable driver of the worldwide economy and helps maintain the positive balance of trade that is the result of our collective manufacturing efforts. We've also made strides in our efforts to be good corporate citizens through advancements in sustainable alternative jet fuel, educational outreach, volunteerism and helping those less fortunate. You can read more about these activities on page 12.

GAMA will continue to be the leading voice for our industry, guided by its organizational mission and vision, which is included on this page. We will also continue to be a global resource for industry data, for which we are well-known and respected, and utilize our strong digital presence to highlight and share important statistics such as the information in this report, government resources, career information and opportunities for the next generation of general aviation leaders and more.

It's clear from this report that GAMA is ensuring the continued success of our industry on a global scale, including for the over 120 companies it represents, which span 15 countries. Every day, the association works to advance the priorities of its member companies and raise awareness about the importance and value of our industry with global leaders, the public and the press. I'm proud to be a part of the GAMA membership, and look forward to what lies ahead for us in 2019.

Best,

Mark Burns

Mark Burns
2019 GAMA Chairman
President, Gulfstream Aerospace Corporation

GAMA Mission and Vision

MISSION

The General Aviation Manufacturers Association (GAMA) exists to foster and advance the general welfare, safety, interests, and activities of the global business and general aviation industry. This includes promoting a better understanding of general aviation manufacturing, maintenance, repair, and overhaul and the important role these industry segments play in economic growth and opportunity, and in serving the critical transportation needs of communities, companies, and individuals worldwide.

VISION

Our vision is to be recognized as the most effective trade association in business and general aviation, aerospace manufacturing, and in the maintenance, repair, and overhaul domain through:

- Enhancing safety through innovation and the promotion of quality training
- Facilitating improvements in certification, audit, and regulatory processes
- Fostering sustainable general and business aviation growth
- Promoting the economic impact and societal benefits of general and business aviation
- Achieving organizational excellence

GAMA hosted a panel discussion among its board members and member company leaders about important issues impacting the industry, including the EASA-FAA validation procedures, at AERO Friedrichshafen in April. Panelists included (L to R): 2018 GAMA Chairman and Garmin Aviation Executive Vice President and Managing Director Phil Straub, Pilatus Aircraft General Aviation Business Unit Vice President Ignaz Gretener, Siemens Global eAircraft Head Dr. Frank Anton, Diamond Aircraft Industries Austria Airworthiness Manager Robert Kremnitzer, GAMA President and CEO Pete Bunce and GAMA Safety and Accident Investigation Committee Chair and Daher Airplane Business Unit Senior Vice President Nicolas Chabbert.

New Milestone in EASA-FAA Validation Procedures

The new Revision 6 of the EASA-FAA Validation Technical Implementation Procedures (TIP) entered into force in March 2018. These new procedures establish a risk-based approach to reduce and further eliminate redundant authority involvement in validating aircraft and products between the U.S. and Europe. It establishes a three-tiered approach for all projects based on mutual confidence and safety risk: reciprocal acceptance, including all Technical Standard Orders for equipment, maintenance repair data and alterations on import aircraft; streamlined validation for basic design approvals, including all piston engine and propeller type certificates; and introduction of a new validation work plan approach to manage projects to focus validating authority technical involvement only in appropriate areas defined up front, based on risk. The EASA-FAA TIP 6 is the first implementation of the collaborative Certification Management Team strategy established by the EASA, FAA, Transport Canada and the National Civil Aviation Agency of Brazil.

Jobs rally speakers included (From L to R): GAMA President and CEO Pete Bunce, 2018 GAMA Chairman and Garmin Aviation Executive Vice President and Managing Director Phil Straub, Senator Jerry Moran (R-KS), Garmin International President and CEO Cliff Pemble, Congressman Ron Estes (R-KS), Kansas Lieutenant Governor Lynn Rogers, Textron Aviation Vice President Doug May, Yingling Chairman and CEO Lynn Nichols, Bombardier Business Aircraft President David Coleal and Olathe Mayor Michael Copeland.

GAMA, U.S. Congressional, Government and Industry Leaders Celebrate the General Aviation Manufacturing Industry

In early April, GAMA held a jobs rally at Garmin International headquarters in Olathe, Kansas, celebrating the contributions of the general aviation manufacturing industry to the Kansas and U.S. economies. The rally marked the 16th GAMA has hosted since 2009. Approximately 700 Garmin employees, industry leaders and stakeholders, and federal, state and local government officials attended the rally in Garmin's new, 720,000 square-foot warehouse and distribution center.

"GAMA is thrilled to celebrate general aviation's proud tradition in Kansas and the opportunities for the industry that lie ahead," said GAMA President and CEO Pete Bunce. "Garmin's new warehouse and distribution center is a tremendous symbol of the vibrancy and excitement about general aviation in the United States and around the world."

"It's an honor to host GAMA today and many of the representatives that value the importance of general aviation," said Garmin International President and CEO Cliff Pemble. We are appreciative of the help of everyone joining us today to ensure that general aviation and Garmin remain a strong economic engine for the state of Kansas, as well as a continued technological innovator for our nation."

"For generations, Kansans have led the nation in manufacturing and servicing the world's highest quality aircraft," said Senator Jerry Moran (R-KS). "Today as we celebrate general aviation—our state's largest industry—I am proud to reflect on the successes we have had in working together to protect and strengthen this industry, particularly in defeating proposals to privatize our nation's air traffic control system."

Hundreds of attendees look on as 2018 GAMA Chairman Phil Straub talks about the general aviation industry's impact during GAMA's jobs rally.

"I want to commend Kansas' aerospace workforce on its talent, commitment and unwavering support for our industry," said Bombardier Business Aircraft President David Coleal.

"As a member of the Education and Workforce Committee, I understand the importance of a skilled workforce for our aviation manufacturers," stated Congressman Ron Estes (KS-04). "General aviation is vital to our Kansas economy and it is successful because of the dedicated individuals employed in the field."

Phil Straub, Garmin executive vice president, managing director of aviation and 2018 GAMA chairman said, "As Garmin and the general aviation industry continue to grow, we look forward to increasing our workforce and expanding our presence in the avionics and the aerospace industry by delivering products that are known for their innovation, reliability and intuitive design."

"General aviation is an industry full of innovation and opportunity with an impact that is far reaching."

Textron Aviation Vice President Doug May remarked, "General aviation is an industry full of innovation and opportunity with an impact that is far reaching. And as the industry continues to grow, the need for diverse talent—from mechanics to pilots to engineers—grows with it."

Yingling Aviation Chairman and CEO Lynn Nichols commented, "It is imperative that all of our efforts in talent search, employer retention and expansion and workforce development are collaborative with a unified strategy between the private sector, the cities, the counties and the state in order to have maximum impact and benefit."

"It's easy to see aviation manufacturing's impact on our national and state economies, but if you look deeper, you'll see the impact companies such as Garmin have on local communities," said Mayor of Olathe Michael Copeland. "They are critically involved in our neighborhoods, schools, and places of worship, quietly making an immeasurable difference."

2018 Aviation Design Challenge

In 2018, GAMA hosted its sixth Aviation Design Challenge, an annual competition to promote Science, Technology, Engineering and Mathematics (STEM) educaton in U.S. high schools through aviation curriculum and a virtual flyoff.

The 2018 competition was the largest yet, with GAMA funding 130 school registration slots. In May, GAMA judges announced that Erie 1 BOCES Harkness Career and Technical Center in Cheektowaga, New York, placed first. They won based on their score from the virtual flyoff, a checklist detailing the steps they took to make the successful flight, a summary of the design changes they made and a video summary submission of what they learned. St. Croix Lutheran Academy in St. Paul, Minnesota, placed second.

Erie 1 BOCES' prize was a two-week all expenses trip paid by GAMA and member company sponsors to Glasair Aviation in Arlington, Washington, for four of the team's students and their teacher and a chaperone. They spent June 17–30 helping build a Glasair Sportsman for GAMA member company and owner-of-record Click Bond, Inc. Not only did Click Bond install some of its products in the plane, it made sure the plane included GAMA member company products, such as a Lycoming Engines engine, a propeller made by Hartzell Propeller and a cockpit with Garmin Aviation products. The students also had an exceptional year for hands-on aviation experiences while at the build; they took flights in a Cirrus SR22T and a Click Bond business aircraft, received a tour of the Boeing Renton Facility and of the Boeing Museum of Flight, and visited with GAMA, Garmin, Gulfstream and Click Bond company staff and representatives.

The plane successfully taxied at the end of the build, and Click Bond debuted the painted Sportsman at the Reno Air Show Races in September.

For placing second, St. Croix Lutheran Academy received a two-day Redbird Flight Simulations STEM Lab Camp, hosted at their high school campus on August 1 and 2. Senator Tina Smith's (D-MN) Outreach Director visited the students during the camp and Senator Amy Klobuchar (D-MN) wrote them a letter commending them for their interest in STEM subjects and their hard work.

GAMA appreciates the support of its member companies in sponsoring and making the Aviation Design Challenge possible. The 2018 sponsors included: BBA Aviation, Boeing Global Services, Bombardier Business Aircraft, Bose Corporation, Cirrus Aircraft, Click Bond, Inc., Embraer, Garmin International, GE Aviation, Glasair Aviation, Gulfstream Aerospace Corporation, Hartzell Propeller, Jet Aviation, Lycoming Engines, Pratt & Whitney Canada, Redbird Flight Simulations, Rockwell Collins and Textron Aviation.

TOP: The St. Croix Lutheran Academy team enjoyed a two-day Redbird Flight Simulations STEM Lab Camp at their high school as the prize for placing second in the 2018 competition.

ABOVE: The Erie 1 BOCES' team helps install a Lycoming Engine during the two-week build of the Click Bond Sportsman.

LEFT: The finished Click Bond Sportsman made its debut at the Reno Air Races in September.

In Europe, an Essential Industry Redoubles Its Investment in Fuels, and the Future

On May 28, a coalition of international business aviation organizations joined government officials, including Claudia Fusco, Head of Unit for Innovation, Directorate-General for Environment of the European Commission, to announce the redoubling of their focus on advancing the development and adoption of Sustainable Alternative Jet Fuel (SAJF), reflecting the industry's long-standing commitment to emissions reduction.

The coalition made the announcement at the European Business Aviation Convention & Exhibition media luncheon on May 28 in Geneva, Switzerland. At the heart of this initiative was a new product—the "Business Aviation Guide to the Use of Sustainable Alternative Jet Fuel (SAJF)"—focused on raising awareness and adoption of available and emerging sustainable alternative jet-fuel options along with providing a roadmap for education about the use of SAJF.

The coalition that produced the guide included the European Business Aviation Association (EBAA), GAMA, the International Business Aviation Council (IBAC), National Air Transportation Association (NATA), and the National Business Aviation Association (NBAA). The Commercial Aviation Alternative Fuels Initiative (CAAFI) and the Air Transport Action Group (ATAG) provided valuable technical assistance.

The Guide made three points clear:

1. SAJF for business aviation are safe, approved, and available today, though in limited quantities,

2. The fuels offer myriad benefits, including those in support of the sustainability of business aviation, corporate responsibility and reduced emissions,

3. The fuels are produced from multiple feedstocks, many of which are sustainable resources, and are therefore an environmental "win-win."

"The general aviation manufacturing industry is proud to partner with the rest of the industry on this important initiative that demonstrates our commitment to achieving the climate change goals we set for the industry in 2009, and will ensure we continue to grow in a sustainable manner," said GAMA President and CEO Pete Bunce. "I also want to extend a special thank you to Ms. Fusco from the European Commission for her presence here today, in support of this important sustainability initiative for aviation."

"Our collective effort as an industry, including the publication of the 'Business Aviation Guide to the Use of SAJF,' is a key step forward, which will raise awareness and benefit our stakeholders, our environment and our business," said GAMA Environment Committee Chairman and Bombardier Business Aircraft President David Coleal. "This initiative is not only about fuels; it reflects our sector's overall commitment to climate change. Civil aviation, including the business aviation sector, is the only global industry to have developed clear, concrete and measurable efficiency goals. By expanding the definition of value creation to include environmental and social impact, we are securing both returns for years to come, and building a brighter, cleaner future for our next generations."

Learn more and download the user guide at FutureofSustainableFuel.com.

Business aviation coalition and industry leaders sign the sustainable alternative jet fuel initiative declaration ahead of EBACE 2018.

GAMA Advocates for Brexit Planning

The United Kingdom's (UK) expected March 2019 departure from the European Union (EU) is expected to have a significant impact on the aviation industry in the UK, Europe and globally. GAMA undertook a range of actions throughout 2018 to both inform regulators of the potential impacts and to advise member companies of the potential mitigation actions that could be taken to minimise disruption to aircraft deliveries, maintenance, training, licensing and operations.

In early June, GAMA joined forces with the UK's ADS Group in sending a letter to the European Commission's (EC) Chief Negotiator for Brexit, Mr. Michel Barnier, stressing the urgent need to begin technical and contingency planning discussions between the European Aviation Safety Agency (EASA) and the UK's Civil Aviation Authority (CAA).

In the letter, GAMA President and CEO Pete Bunce and ADS Group's Chief Executive Paul Everitt expressed the gravity of the situation: "Without an agreed solution and continued connectivity both for airlines/operators and aerospace parts, then supply chain disruption across Europe will occur, parts will be unable to be delivered, pilots and maintenance technicians will be unable

Continued on next page

to work, aerospace companies in the UK will lose foreign validations for their business, and aircraft will be grounded globally."

"The impact of Brexit on aviation is not isolated to UK companies, it falls on the European aerospace industry as a whole," they stated. "We need to see significant progress on key issues at the June European Council meeting, including agreement that EASA and the UK CAA can begin technical and contingency planning discussions this summer."

Both GAMA and ADS Group stressed that their industries stand ready to work with the UK Government and the EU to make sure the solutions agreed to in negotiations are pragmatic, comprehensive, and minimise any damaging impacts on the global industry.

In mid-July, GAMA issued a statement in response to the UK's white paper on the future relationship between the UK and the EU.

"We hope this white paper will be a catalyst for accelerating the UK government's negotiations with the European Union. The paper provides long-awaited clarity that the UK wishes to continue to be a part of the European Aviation Safety Agency (EASA), which would minimise regulatory barriers for industry whilst maintaining high levels of aviation safety across Europe. The paper's proposals on the Single Market for Goods and Customs arrangements also offer some options to avoid disruption to the supply chain of aircraft parts that cross the Channel every day, which any new tariffs, customs or compliance checks would cause."

Following these and other GAMA advocacy efforts, both the UK CAA and EASA announced more comprehensive guidance as well as new mitigation options for a 'No-Deal' Brexit in October 2018. GAMA organized a webinar on 10 October to allow EASA to directly brief members on these new measures, as well as to allow the FAA's International Office to provide details of their preparations with the UK CAA to ensure continuity of certification and maintenance agreements.

Latest ATC Spinoff Proposal Meets Continued and Heavy Opposition

In late June, six associations representing the general aviation industry issued a statement strongly opposing the Trump Administration for including in its government reorganization proposal a failed idea to privatize the U.S. Federal Aviation Administration's (FAA) air traffic control services.

"There is a large and diverse chorus of opposition to the idea of privatizing our air traffic control system, including congressional leaders from both political parties, more than 100 aviation organizations, over 100 business leaders, 100 U.S. mayors, consumer and agricultural groups, conservative think tanks, and the majority of Americans. Additionally, this concept has been fully considered in the U.S. Congress and rejected despite years of repeated attempts," said GAMA, the Aircraft Owners and Pilots Association, Experimental Aircraft Association, Helicopter Association International, National Air Transportation Association and National Business Aviation Association.

"Instead of focusing precious time and resources on what amounts to nothing more than a distraction to the aviation community, the Administration needs to support a long-term FAA bill, like those passed by the House of Representatives and now pending in the Senate. These bills will take practical and significant steps to address many critical issues like aviation safety, modernization, which includes accelerated advancement of the Next Generation Air Transportation System (NextGen), and needed aircraft certification and regulatory reform. Additionally, the Department of Transportation needs to continue with its commitment to the NextGen Advisory Committee, which fosters collaboration in an open and transparent manner and helps advance air traffic control modernization priorities and investments.

"We are disappointed that the Administration continues to reintroduce a failed proposal. Instead, it should put its weight behind FAA legislation pending in Congress that will advance the aviation industry, including general aviation, which contributes $219 billion to the U.S. economy and creates over one million jobs in the U.S."

GAMA board members and member company leaders met with members of the U.S. Congress in May, during GAMA's annual Hill Day, to talk about issues impacting the industry, including air traffic control privatization. From L to R: Duncan Aviation COO Jeff Lake, Luxaviation Group Chief Technical Officer David Van Den Langenbergh, Senator Tammy Baldwin (D-WI), 2019 GAMA Chairman and Gulfstream Aerospace Corporation President Mark Burns and Universal Avionics System Corporation CEO Paul DeHerrera.

GAMA Welcomes Largest Group of Companies to Membership in Association History

GAMA's membership continued growing, with the association ending the year at a record high: representing over 120 companies located in 15 countries, spanning five continents.

Notably, in August, the GAMA Executive Committee approved 14 companies to join—the largest group of new members added at one time in the association's history.

"With the addition of our associate member full category, GAMA will be able to facilitate larger players in the simplified vehicle operation and electric and hybrid arenas," said GAMA Chairman and Garmin Aviation Executive Vice President and Managing Director Phil Straub. "We look forward to continuing to expand GAMA's membership to ensure the association represents the full breadth and depth of the industry."

"GAMA's effectiveness is clear through this large membership addition," said GAMA Vice Chairman and Gulfstream Aerospace President Mark Burns. "The association's top-notch advocacy is stimulating a growing interest in this dynamic industry."

Member companies added in 2018 included ABS Jets, Catherineau, Raisbeck Engineering, Signature Flight Support and Viking Aerospace. Associate members full added included Eviation, ICON Aircraft, Joby Aviation, Kitty Hawk, Terrafugia and Uber. Associate members added included Ampaire, Alakai Technologies Corporation, AVIAGE, Karem Aircraft, MagniX, Robotic Skies, SkyRyse, Volocopter, Xwing and ZeroAvia.

The European Aviation Safety Agency Mandate Passes

In September, GAMA celebrated the entering into force of the 'Basic Regulation,' a mandate modernizing Europe's aviation safety framework.

"This lays the foundations for an EASA 2.0, the result of a mammoth effort from EASA, the EU institutions and stakeholders," said GAMA President and CEO Pete Bunce. "Industry, however, will see little change until the underlying technical rules are in place. We now have the 'what' but we still need the 'how'."

The new regulation foresees a maximum of five years to update EASA's current implementing rules, including those covering operations, licensing and airworthiness. A key element in the new performance-based approach is to ensure that regulations focus on safety objectives rather than prescribing rigid solutions that cannot keep pace with technological innovation.

"Unfortunately, even today we see a major bottleneck when it comes to the European Commission and Member States finalising proposals from EASA," Bunce continued. "We need to see a significant improvement in how new safety rules emerge, to avoid industry of all sizes treading water for years to come. We can avoid this only with a well-resourced EASA and a newfound efficiency in Brussels."

GAMA President and CEO Pete Bunce speaks about modern general aviation aircraft at the EASA Annual Safety Conference in November.

GAMA Supports FAA AIR Transformation Certification Reforms

In January, then-FAA Administrator Huerta chartered a Safety Oversight and Certification Aviation Rulemaking Committee (SOC-ARC) to engage industry on how to best meet future certification demands and to identify and recommend initiatives to improve the efficiency and effectiveness of the aircraft certification and safety oversight system. GAMA Board Member and Bell Technology and Innovation Executive Vice President Michael Thacker led the SOC-ARC as Co-Chair alongside FAA Deputy Executive Director of Aircraft Certification Service, Chris Carter. Several GAMA member companies, industry stakeholder groups, FAA Aircraft Certification and Flight Standards workforce bargaining units and FAA policy managers supported the SOC-ARC. In July, following SOC-ARC inputs and recommendations, the FAA issued the first edition of the *Comprehensive Strategic Plan for AIR Transformation*. In December, the SOC-ARC submitted its recommendation report to the Aircraft Certification and Flight Standards Services Executive Directors. GAMA and its member companies will continue to support implementation of AIR Transformation for a safer, more effective, and more efficient certification process for both the FAA and industry. The recommended changes could facilitate increased international cooperation and efficiencies, strengthen the FAA's global aviation safety leadership and support the competitiveness of aviation products.

U.S. Government Enacts Historic Federal Aviation Administration Reauthorization

In September, GAMA applauded the U.S. House of Representatives and Senate for passing legislation authorizing the programs of the Federal Aviation Administration (FAA) for five years and advancing key priorities for the general aviation manufacturing and maintenance industry.

GAMA President and CEO Pete Bunce stated, "We are thrilled to see a long-term FAA reauthorization bill that will strengthen the general aviation industry, mandate needed reforms, and provide certainty for the entire aviation sector."

Specifically, Bunce thanked the House of Representatives and the House Transportation and Infrastructure Committee bipartisan leadership, including Chairman Bill Shuster (R-PA), Ranking Member Peter DeFazio (D-OR), Aviation Subcommittee Chairman Frank LoBiondo (R-NJ) and Ranking Member Rick Larsen (D-WA), for their work on this important legislation.

GAMA also applauded the members of the Senate and the Senate Commerce, Science, and Transportation Committee bipartisan leadership, including Chairman John Thune (R-SD), Ranking Member Bill Nelson (D-FL), and the Aviation Operations, Safety, and Security Subcommittee leadership: Chairman Roy Blunt (R-MO) and Ranking Member Maria Cantwell (D-WA).

The law (P.L. 115-254), enacted on October 5, 2018, authorizes the FAA through September 30, 2023, and includes numerous provisions that will improve aviation safety, streamline regulatory burdens, strengthen job creation, encourage competitiveness and innovation, and stimulate exports. Specifically, it:

- Strengthens the effectiveness of the Organizational Designation Authorization process and oversight to enhance the predictability and efficiency of the certification process for new products and technology;
- Sends a clear message to the FAA to improve safety cooperation with international partners, facilitate improvements and end delays in the validation and acceptance of aviation products;
- Calls for the FAA to establish a Task Force on Flight Standards Reform to help drive needed improvements in the FAA Flight Standards Organization. The Task Force includes manufacturers and will look at how the certification, operational evaluation and entry into service of newly manufactured aircraft can be improved;
- Requires the FAA establish a comprehensive regulatory database and a Regulatory Communications Consistency Board to reduce regulatory inconsistency at the agency; and,
- Requires the U.S. Department of Transportation Secretary establish a Safety Oversight and Certification Advisory Committee that includes representatives of commercial and general aviation, including aircraft, engine, and avionics manufacturers, and maintenance, repair and overhaul organizations. The Committee's work will focus on certification and regulatory process reform, safety management systems, rulemaking improvements and enhancing global competitiveness.

More broadly, the law also makes progress in other areas where GAMA had previously worked to advance its members' interest. Specifically, it:

- Asks the Government Accountability Office to conduct a review of the FAA's implementation of the new Part 23 performance-based rule to ensure the agency is working with industry to maximize the rule's effectiveness; and,
- Mandates the FAA Aircraft Registry Office in Oklahoma City remain open in the event of a government shutdown or emergency furlough.

Finally, the law draws attention to the growing interest in the aviation workforce shortage by establishing a 'Youth Access to American Jobs in Aviation Task Force' and a 'Women in Aviation Advisory Board.' Previously, GAMA had applauded members of the House and

GAMA board members and member company leaders met with members of the U.S. Congress in May, during GAMA's annual Hill Day, to talk about issues impacting the industry, including FAA Reauthorization. From L to R: Cirrus Aircraft CEO Dale Klapmeier, then-House Transportation and Infrastructure Committee Ranking Member Peter DeFazio (D-OR), 2018 GAMA Chairman and Garmin Aviation Executive Vice President and Managing Director Phil Straub, AvFuel Corporation Business Development Managing Director C.R. Sincock and Wipaire President and COO Chuck Wiplinger.

Senate who introduced the Promoting Women in the Aviation Workforce Act of 2017, including Senators Susan Collins (R-ME) and Tammy Duckworth (D-IL), and Representatives Elizabeth Esty (D-CT) and Jackie Walorski (R-IN).

Bunce stated, "When it comes to the aviation sector, women are, to our industry's detriment, very underrepresented. They are a critical resource from which we need to tap to recapitalize our aging workforce."

In March, GAMA also praised Senators Jim Inhofe (R-OK), Richard Blumenthal (D-CT), Jerry Moran (R-KS) and Maria Cantwell (D-WA) for introducing the "Aviation Maintenance Workforce Development Pilot Program," which would help address the aviation industry's looming technical worker shortage.

"Your legislation would incentivize businesses, labor organizations, schools, and governmental entities to work together to pursue innovative new strategies to develop technical talent and encourage workers to pursue aviation careers," GAMA and 16 other aviation organizations wrote in a letter of support they sent to the Senators on March 5. "Given the scale of the challenge facing companies in Oklahoma, Connecticut, Kansas, Washington, and elsewhere around the country, your proposal could not be timelier."

Following the president's signature of the FAA Reauthorization, GAMA and the Aerospace Industries Association (AIA) issued a joint statement:

"This is the first time since 1982 that the U.S. government has enacted a five-year FAA reauthorization. This new law contains key reforms that can help to transform the U.S. aerospace industry and the FAA, and secure America's position as a global aviation leader into the future.

"This new law provides direction, training, and tools for the FAA to be able to aggressively implement critical reforms that will enable new aircraft and technologies such as urban air mobility, commercial space, unmanned aerial systems, supersonics, and additive manufacturing. It will also provide our industry the budget stability and certainty we need to deliver on our extensive research and development investments.

"At their core, these reforms will help to drive important progress on safety, efficiency, investment, competitiveness and the effective use of taxpayer and industry resources. We appreciated the Congress' focus on improving the certification process, and including measures to bolster the future aviation workforce, including by increasing the diversity and inclusion of underrepresented groups, so that workforce limitations are not an impediment as our industry continues to expand.

"The signing of this legislation into law is an historic opportunity. The FAA's implementation of these mandated reforms can accelerate change and innovation at the agency. Without them, the pace of new technology will continue to overwhelm the regulatory system. We call on all members of the government and industry to commit to this transformational timeline and work together to implement this legislation."

Aerospace Associations Announce Safety Management System Industry Standard

In early October, the world's leading aerospace designers, manufacturers and maintenance providers announced publication of a new, international industry standard to improve safety performance and enhance safety culture: "Implementing a Safety Management System for Design, Manufacturing and Maintenance Providers."

GAMA, Aerospace Industries Association of America, Aerospace Industries Association of Brazil, Aerospace

Industries Association of Canada and AeroSpace and Defence Association Industries of Europe spent two years developing the standard. The standard enables the global aviation industry to implement a Safety Management System (SMS) throughout the global supply chain, consistent with the International Civil Aviation Organization's Annex 19 "Safety Management" standards and recommended practices.

"This standard will allow us to implement key safety measures consistently throughout the industry," said GAMA President and CEO Pete Bunce. "It will facilitate a more efficient and globalized approach to approvals from aviation authorities around the world."

SMS is a decision-making methodology based on proactively identifying, assessing and controlling hazards and safety risks before they result in accidents and incidents, and analyzing performance data for continuous improvement. The associations that developed the standard have also established a steering committee to oversee and support the standard, including working with the broader stakeholder community to ensure that future revisions are effective.

The standard is available free-of-charge on the websites of the five sponsoring aerospace manufacturing associations. View it in the "Data and Publications" section on GAMA.aero.

GAMA Celebrates National Manufacturing Day with Workforce Development Video Series Launch

On October 5, in conjunction with National Manufacturing Day, GAMA announced the launch of its new video series about careers in the general aviation manufacturing and maintenance industry.

The launch video, "Manufacturing is Not an Assembly Line" features GAMA member company employees discussing what modern general aviation manufacturing is, and their careers in an industry they say is high-tech, innovative and exciting.

"Too often people think of a job in the manufacturing industry as entailing repetitive work requiring little skill with minimal opportunity for professional growth," said GAMA President and CEO Pete Bunce. "We hope that giving the public a behind-the-scenes look at our member companies and watching talented and enthusiastic industry professionals share their stories will shift people's perception and inspire them to consider a career in our dynamic industry."

GAMA's workforce development series will feature nine total videos covering a range of themes that address common public perception misnomers, including how there is no typical day on the job, the innovation and creativity that is a part of the professionals' work and more.

"This is one implement in our toolbox of initiatives and programs to address the looming workforce shortage so many of us are aware of, and the Boeing 2018 Pilot and Technician Outlook highlights," continued Bunce. "In combination with the GAMA Aviation Design Challenge, our internship and career database, our support of congressional workforce legislation and more, we hope to attract talent to our industry and alleviate the shortage."

You can view this series by visiting the 'Resources' section on GAMA.aero.

Aviation Associations Release Best Business Practices Recommending Fee Transparency

In late October, GAMA, along with five additional major aviation associations, released a "Know Before You Go" agreement that lays out a series of communications best practices, including publishing an online list of potential prices, fees, and charges that pilots may face when landing at an airport.

The joint agreement calls on fixed base operators (FBOs) to "move expeditiously to implement these practices," but recognizes that certain providers face unique challenges and may need time to implement the new best practices. It also recommends customers contact FBOs directly, "so that operators can ask questions, know and evaluate their options, and make informed decisions."

According to the agreement, "With this declaration, we remain committed to promoting the widespread adoption of these best practices, which will strengthen the flight experience and general aviation overall."

"We appreciate our member companies that own and operate FBOs leading this effort toward improved transparency for all of us that fly general aviation aircraft," said GAMA President and CEO Pete Bunce.

The joint document was issued by GAMA, the Aircraft Owners and Pilots Association, the Experimental Aircraft Association, Helicopter Association International, the National Air Transportation Association, and the National Business Aviation Association.

GAMA Continues Shaping the Next Era of Aviation

GAMA and its member companies, through the GAMA Electric Propulsion and Innovation Committee (EPIC), have been working to introduce a new era of aviation marked by the electrification of propulsion and increased automation. As these technologies mature, they enable not a single new direction, but a spectrum of new aircraft and transportation capabilities. Critical to enabling this revolution is the work GAMA has championed for a decade to

Harris Poll Survey Reaffirms Importance of Business Aviation to Companies, Communities

In October, GAMA joined with the National Business Aviation Association (NBAA) to release the findings of the latest survey conducted by The Harris Poll demonstrating the value of business aviation in providing safe, efficient transportation to companies of all sizes, particularly those located in smaller communities with little to no commercial airline service.

"Since 2009, we've said, 'No Plane No Gain,' and this updated survey confirms the power of the slogan," said GAMA President and CEO Pete Bunce. "General aviation aircraft are indispensable business productivity tools, allowing flexibility, connectivity and efficiency. But they are also on the front line, providing an essential transportation and supply link for those in need around the world."

GAMA members had the opportunity to discuss their advancements in electric and hybrid propulsion with government officials during a Federal Aviation Administration (FAA) 'Innovation Tour' at EAA AirVenture Oshkosh. Here, Eviation CEO Omer Bar-Yohay (L) talks with FAA Acting Administrator Dan Elwell.

reform small aircraft design rules to be based on safety objectives rather than prescriptive outdated technologies.

Over the last several years, key innovators around the world have worked together through GAMA as battery technologies have matured, motor capabilities have been refined and control systems have been perfected. Battery safety, energy density, available power and charging speeds have continued to mature at a steady pace over the last several decades to the point that all-electric and hybrid energy aircraft are now being designed and flight tested with mature certification efforts now underway. Electric motors present the potential to drastically reduce maintenance, as in some cases there is only one moving part—a bearing. Electric motors present new aerodynamic opportunities by allowing designers to place motors in discrete locations where traditional engines can't fit. Rapid developments in microelectronics are ushering in unparalleled levels of system architecture, which allow for controlling and monitoring thrust and flight surfaces hundreds of times per second.

For decades we have included increased levels of automation in general aviation and business aircraft, and while it has become easier to maintain situational awareness and to manage systems with these capabilities, training and licensing requirements have increased. GAMA has been working to simplify operations with intelligent systems design paths, which will allow pilots more capability, increased safety and enable new kinds of operations that might not require a pilot. Through the GAMA Simplified Vehicle Operations Subcommittee, GAMA is working with global aviation authorities to link design capabilities with operational training and responsibilities in entirely new ways.

The maturation of these new propulsion technologies, new capabilities through powerful microelectronics and a new and adaptive regulatory capability are culminating in the advent of exciting new aviation products. From cost effective light trainers to urban mobility, the developments GAMA and its members are working on are ushering new ways for people to enjoy aviation in their daily lives.

GAMA Salutes FAA's Dorenda Baker, Welcomes New Senior Leaders

At the end of November, GAMA said farewell to the U.S. Federal Aviation Administration (FAA) Aircraft Certification Service Executive Director Dorenda Baker, who retired from the FAA after serving a 32-year tenure. At the same time, GAMA welcomed the appointments of Earl Lawrence, Jay Merkle and Rick Domingo to the roles of Aircraft Certification Service Executive Director, Unmanned Aircraft Systems Director and Flight Standards Executive Director, respectively.

General Aviation Safety Focus Continues

GAMA and its members are committed to making general aviation even safer, including through the development of innovative technologies and expert engagement on policy, outreach, education and training initiatives. The number of U.S. general aviation fatal accidents in 2018 was the third lowest on record, following 2017, which provided the lowest fatal accident rate on record.

GAMA is proud to continue to support data-driven safety efforts through the General Aviation Joint Steering Committee (GAJSC) and U.S. Helicopter Safety Team (USHST). In 2018, GAJSC Controlled Flight Into Terrain (CFIT) Working Group completed an analysis of select CFIT accidents and began drafting detailed safety recommendations. According to the GAJSC Pareto, CFIT accidents are the second leading cause of general aviation accidents. The joint industry-government working group is expected to release and begin implementing its recommendations in 2019.

The GAJSC has already released safety recommendations to mitigate loss of control inflight and system component failure powerplant accidents. The USHST adopted a process similar to the GAJSC's in 2016 and released its safety enhancements the following year to address loss of control inflight, low altitude and unintended flight into instrument meteorological conditions accidents.

GAMA is actively involved in efforts to improve general aviation safety in Europe as well, working closely with the European Aviation Safety Agency (EASA), national authorities and general aviation pilot/operator groups to collect better safety data and support rulemaking and safety promotion activities. GAMA is also a member of EASA's General Aviation Sectoral Committee, Rotorcraft Sectoral Committee and the Collaborative Analysis Group for General Aviation.

GAMA Members Give Back

A snapshot of how GAMA members gave back to their communities, helped those in need, and invested in the industry's future workforce in 2018.

Aviall, a Boeing Company, collected over 10,000 pounds of food for the North Texas Food Bank and donated 75 bicycles to Toys for Tots during the holidays.

In Texas, where most of **Boeing's** GA business resides, the company gave $5.8 million in charitable contributions; its employees volunteered 10,113 hours in communities across the state; Boeing leaders serve as board members for six non-profit organizations throughout Texas; paid nearly $358,000 in tuition for more than 84 employees attending local colleges and universities through the Boeing Learning Together Program; and contributed more than $172,000 to Texas university programs and scholarships.

Continental Motors Group announced its second year of support for the Mobile Aeroplex at Brookley STEM Initiative, an educational program that sponsored 36 students to attend the National Flight Academy's six-day Deployment program in June.

Embraer continued its Institute's 15-year tradition of community development by giving a full scholarship to over 800 low-income students to attend two exceptional Brazilian high schools. The Embraer Foundation devoted over 2,800 hours to volunteering and community engagement activities, reached over 400 students through its entrepreneurship program and awarded 14 mini-grants to nonprofit organizations in nine communities around the U.S., where Embraer has operations.

FlightAware's Houston crew spent a day volunteering at an animal shelter; volunteered at Project C.U.R.E., sorting critical medical supplies and preparing them for shipping and distribution; and donated 12 'Kits for Kids' ready for shipping, which are kits that provide personal hygiene and basic "medicine cabinet" items to parents in developing countries.

GE Honda Aero Engines spent a day sorting and packing donated supplies for Crayons to Computers in Cincinnati; GE Aviation and Honda Aero Engines employees hosted an event for The Children's Home of Cincinnati.

Gulfstream Aerospace Corporation and its employees donated $2 million to the United Way of the Coastal Empire; Savannah employees volunteered more than 1,000 hours to construct a new home for a military veteran through Coastal Empire Habitat for Humanity; celebrated the 10th anniversary of the Gulfstream-founded Student Leadership Program with an expansion of the program into the Dallas area; and through the Gulfstream Community Volunteer Program, employees donated thousands of hours in support of more than 70 volunteer events in communities where they live and work.

Jet Support Services, Inc. was a sponsor of the 2018 Season of Hope event to benefit Chicago Youth Programs, which improves the health and life opportunities of at-risk youth using a comprehensive approach aimed at developing their capabilities.

Lycoming Engines hosted activities for school counselors and career technology educators in conjunction with National Manufacturing Day.

Pratt & Whitney Canada gave 25 Quebec school students a behind-the-scenes aviation industry experience to reward their academic persistence through the TRIOOMPH Foundation's Driving Your Success program; participated in the Great St. Lawrence River Shoreline Clean-Up; lent their expertise to Shanghai Regional FIRST Robotics Competition participants in China; and participated in a waterway-cleaning activity along Singapore's Kallang Basin in collaboration with Waterways Watch Society.

StandardAero Augusta, Georgia, employees donated non-conforming tooling, old supplies and expired consumables to Augusta Technical College for use training the next generation of technicians.

Terrafugia gave back to Wounded Warrior and St. Jude's Children's Hospital, purchased one Stella Artois chalice for every employee (each chalice provides five years of clean water to someone in the developing world), and donated 13 animals to those in need in Hong Kong through Heifer International.

Textron Aviation and its employees generated nearly $2.5 million in pledges for the company's UPLIFT Program; raised $2.5 million for the Boys and Girls Club of Kansas through the company's Wings for Dreams program; supported 12 SkillsUSA Kansas competitions and provided sponsorships to 31 first-place winners who advanced to the SkillsUSA national competition; sponsored Kansas BEST high school robotics competitions; contributed $250,000 to Exploration Place's all-new aviation exhibit; and treated students to discovery flights by Textron Aviation's Top Hawk pilots at the Textron Aviation Employees' Flying Club.

True Blue Power employees contributed more than $33,000 to the United Way of the Plains and United Way of Greater Los Angeles. Wichita and Van Nuys locations employees collected more than 10,680 pounds of food and canned goods for the Kansas Food Bank and Hope of the Valley Rescue Mission. True Blue Power also participated in the Heartspring Autism CARE walk and the Susan G. Komen Race for a Cure.

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GAMA's 2018 Annual Report covers aircraft shipments from 39 aircraft manufacturers. The report also provides detailed information about aircraft fleets from 46 countries, representing the vast majority of the market for general aviation aircraft shipments.

Aircraft Shipment and Billings

The GA aircraft manufacturing industry increased unit deliveries in 2018 compared to the prior year. The billings increased slightly to approximately $24.2 billion.

Piston airplane deliveries increased by 5.0 percent to 1,139 units. Manufacturers shipped 601 turboprop airplanes, an increase of 5.2 percent (*) for the same reporting companies. The business jet industry, driven by recent product introductions, improved from 677 units in 2017 to 703 units in 2018, a 3.8 percent increase.

Piston airplane shipments to North American customers accounted for 61.5 percent of overall deliveries. The Asia-Pacific region was the second largest market for piston airplane deliveries for the fourth year in a row at 18.5 percent of deliveries. 49.8 percent of turboprop airplanes went to customers in North America in 2018. The second largest market for turboprops was Asia-Pacific at 15.1 percent, followed by Latin America at 14.9 percent. At 65.1 percent, North America accounted for the largest share of the business jet market in 2018.

There were 281 piston rotorcraft deliveries in 2018 compared to 264 in the prior year. Preliminary (**) turbine rotorcraft delivery data shows a 5.0 percent increase to 695 shipments.

Aircraft Fleet

The worldwide fleet of turbine general aviation airplanes continued to grow in 2018 according to JETNET. There were 22,273 business jets and 15,519 turboprop airplanes in the fleet. This accounts for an increase of over 17,000 airplanes since 2000.

The rotorcraft fleet included 9,732 piston helicopters and 21,926 turbine-powered helicopters.

The fractional aircraft fleet reached 853 at the end of 2018, an increase by approximately 1.7 percent year-over-year. The numbers of owners was stable at 3,912.

U.S. Pilot Population

The U.S. pilot population grew by 4 percent to 633,318. The share of female pilots increased slightly to 7.3 percent of the overall number of certificate holders. The largest driver of the increase in pilots was a 12 percent increase in the number of student pilot certificate holders, which reached 167,804 at the end of 2018. The number of Air Transport Pilot certificate holders grew by 1.8 percent to 162,145. The active private pilot population, defined as those holding an FAA-issued medical certificate, increased by 0.8 percent to 163,695 persons.

Additional data is available on GAMA's website at www.GAMA.aero. If you have questions about the data in this report, please contact GAMA staff by telephone at +1-202-393-1500 or by email, at info@GAMA.aero.

(*) Viking Air Ltd. Started reporting delivery data in 2018.

(**) Leonardo Helicopters fourth quarter data is not available at the time of publication of GAMA's annual report. Leonardo Helicopters will release year-end results in mid-March 2019. GAMA will update the online 2018 report then. GAMA excluded 2017 fourth quarter data for Leonardo in the comparison in the text.

CHAPTER **ONE**

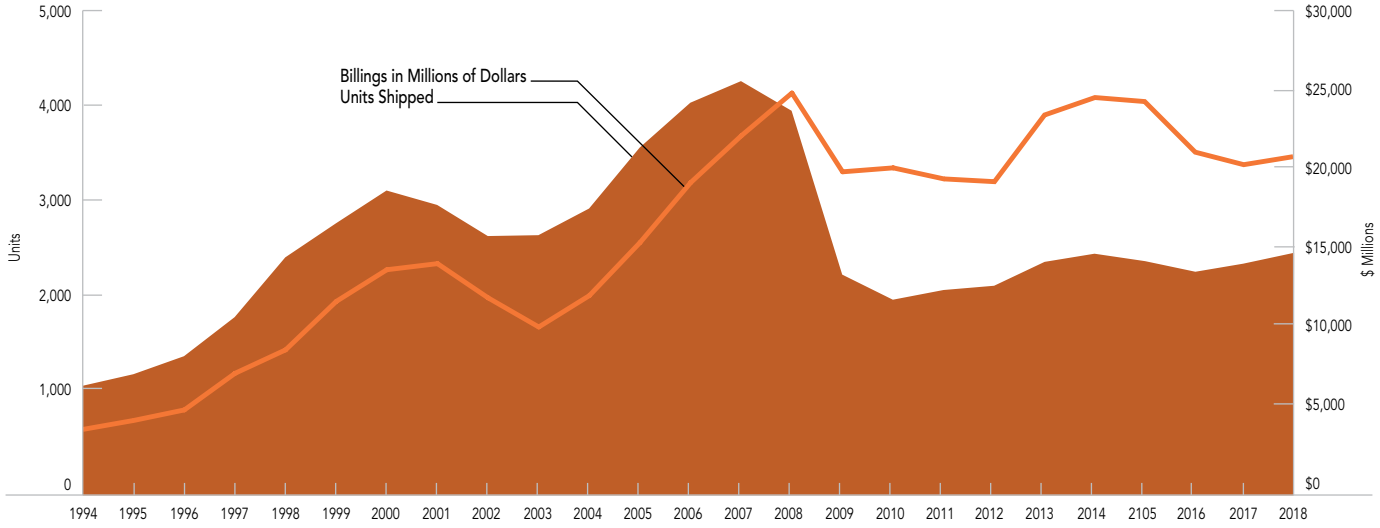
GENERAL AVIATION SHIPMENTS AND BILLINGS

1.1 General Aviation Airplane Shipments by Type of Airplane Manufactured Worldwide (1995–2018)

Year	Grand Total	Single-Engine Piston	Multi-Engine Piston	Total Piston	Turboprop	Business Jet	Total Turbine
1995	**1,251**	605	61	**666**	285	300	**585**
1996	**1,437**	731	70	**801**	320	316	**636**
1997	**1,840**	1,043	80	**1,123**	279	438	**717**
1998	**2,457**	1,508	98	**1,606**	336	515	**851**
1999	**2,808**	1,689	112	**1,801**	340	667	**1,007**
2000	**3,147**	1,877	103	**1,980**	415	752	**1,167**
2001	**2,998**	1,645	147	**1,792**	422	784	**1,206**
2002	**2,677**	1,591	130	**1,721**	280	676	**956**
2003	**2,686**	1,825	71	**1,896**	272	518	**790**
2004	**2,962**	1,999	52	**2,051**	319	592	**911**
2005	**3,590**	2,326	139	**2,465**	375	750	**1,125**
2006	**4,054**	2,513	242	**2,755**	412	887	**1,299**
2007	**4,277**	2,417	258	**2,675**	465	1,137	**1,602**
2008	**3,974**	1,943	176	**2,119**	538	1,317	**1,855**
2009	**2,283**	893	70	**963**	446	874	**1,320**
2010	**2,024**	781	108	**889**	368	767	**1,135**
2011	**2,120**	761	137	**898**	526	696	**1,222**
2012	**2,164**	817	91	**908**	584	672	**1,256**
2013	**2,353**	908	122	**1,030**	645	678	**1,323**
2014	**2,454**	986	143	**1,129**	603	722	**1,325**
2015	**2,331**	946	110	**1,056**	557	718	**1,275**
2016	**2,267**	890	129	**1,019**	582	666	**1,248**
2017	**2,325**	936	149	**1,085**	563	677	**1,240**
2018	**2,443**	954	185	**1,139**	601	703	**1,304**

Source: GAMA

FIGURE 1.1 **General Aviation Airplane Shipments and Billings Worldwide (1994–2018)**



Source: GAMA

1.2 Estimated Billings (in Millions) for General Aviation Airplane Shipments by Type of Airplane Manufactured Worldwide (1995–2018)

Year	Grand Total	Single-Engine Piston	Multi-Engine Piston	Total Piston	Turboprop	Business Jet	Total Turbine
1995	**4,294**	n/a	n/a	**169**	774	3,351	**4,125**
1996	**4,936**	n/a	n/a	**191**	864	3,881	**4,745**
1997	**7,170**	n/a	n/a	**238**	913	6,019	**6,932**
1998	**8,604**	n/a	n/a	**377**	1,011	7,216	**8,227**
1999	**11,560**	n/a	n/a	**440**	930	10,190	**11,120**
2000	**13,496**	n/a	n/a	**512**	1,323	11,661	**12,984**
2001	**13,868**	n/a	n/a	**541**	1,210	12,117	**13,327**
2002	**11,778**	n/a	n/a	**483**	868	10,427	**11,295**
2003	**9,998**	n/a	n/a	**545**	837	8,616	**9,453**
2004	**12,093**	n/a	n/a	**692**	997	10,404	**11,401**
2005	**15,156**	n/a	n/a	**805**	1,189	13,161	**14,350**
2006	**18,815**	n/a	n/a	**857**	1,389	16,555	**17,958**
2007	**21,837**	n/a	n/a	**897**	1,593	19,347	**20,940**
2008	**24,846**	n/a	n/a	**945**	1,953	21,948	**23,901**
2009	**19,474**	n/a	n/a	**442**	1,589	17,443	**19,032**
2010	**19,715**	n/a	n/a	**415**	1,300	18,000	**19,300**
2011	**19,042**	n/a	n/a	**441**	1,365	17,235	**18,600**
2012	**18,895**	n/a	n/a	**428**	1,359	17,108	**18,467**
2013	**23,450**	n/a	n/a	**571**	1,821	21,058	**22,879**
2014	**24,499**	n/a	n/a	**635**	1,849	22,015	**23,864**
2015	**24,129**	n/a	n/a	**601**	1,651	21,877	**23,528**
2016	**21,092**	n/a	n/a	**661**	1,705	18,727	**20,432**
2017	**20,201**	n/a	n/a	**718**	1,490	17,994	**19,483**
2018	**20,564**	n/a	n/a	**866**	1,839	17,859	**19,698**

Starting in 2011, the data includes the addition of agricultural airplanes and also new piston airplane manufacturers previously not in the report. The data cannot be directly compared to 2010 and earlier entries. Refer to Tables 1.4b and 1.4c for make and model detail.

Source: GAMA

1.3 Customer Delivery Region (in Percent of Total) for General Aviation Airplane Shipments by Type of Airplane Manufactured Worldwide (2007–2018)

Year	Piston					Turboprop					Business Jet				
	North America	Europe	Asia-Pacific	Latin America	Middle East & Africa	North America	Europe	Asia-Pacific	Latin America	Middle East & Africa	North America	Europe	Asia-Pacific	Latin America	Middle East & Africa
2007	66.5	16.3	9.2	5.4	2.7	57.2	16.3	8.6	14.4	3.4	58.3	24.9	4.2	7.5	5.2
2008	68.1	15.2	7.5	7.3	2.0	57.3	21.9	6.0	7.4	7.4	53.8	25.9	4.7	9.4	6.3
2009	59.4	21.2	9.5	6.8	2.8	57.8	17.5	8.7	8.1	7.8	49.4	26.3	8.6	9.2	6.4
2010	53.4	18.6	13.7	8.8	5.5	43.2	15.2	16.8	14.7	10.1	42.1	22.8	11.8	14.3	9.0
2011	57.7	12.0	15.6	10.0	4.6	52.6	14.1	14.4	13.6	5.3	50.0	20.2	12.9	10.1	6.8
2012	50.4	19.6	16.3	9.7	4.1	48.6	12.6	17.4	14.5	6.9	49.7	20.8	11.8	11.6	6.1
2013	52.8	17.2	15.1	10.0	5.0	57.1	10.5	14.0	13.2	5.3	52.4	15.6	11.9	11.1	9.0
2014	55.1	19.7	12.1	8.9	4.3	51.3	7.7	19.4	15.3	6.3	52.2	19.5	10.9	9.4	7.9
2015	66.7	11.4	13.5	6.3	2.2	56.2	6.6	16.3	14.5	6.3	60.8	18.0	9.2	7.1	4.9
2016	69.6	10.1	10.2	5.8	4.3	57.8	10.6	13.2	9.9	8.4	62.0	18.8	7.7	6.2	5.3
2017	65.6	9.5	13.4	5.9	5.6	54.2	12.8	14.1	15.5	3.4	63.8	17.0	9.9	5.3	4.0
2018	61.5	10.8	18.5	5.0	4.1	49.8	12.9	15.1	14.9	7.2	65.1	15.4	10.0	5.8	3.7

Source: GAMA

1.4a **Worldwide Business Jet Shipments by Manufacturer (2005–2018)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Airbus	**9**	**11**	**13**	**11**	**13**	**15**	**10**	**9**	**6**	**5**	**4**	**1**	**0**	**1**
Airbus Corporate Jet (all models)	9	10	12	9	11	-	-	-	-	-	-	-	-	-
ACJ318	-	-	-	-	-	2	2	2	1	0	1	0	0	0
ACJ319	-	-	-	-	-	8	6	6	4	1	1	0	0	0
ACJ320	-	-	-	-	-	3	1	0	0	4	1	0	0	1
ACJ321	-	-	-	-	-	-	-	-	1	0	0	0	0	0
ACJ330	-	-	1	1	1	1	1	1	0	0	1	1	0	0
ACJ340	-	1	0	1	1	1	0	0	0	0	0	0	0	0
Avcraft (prev. Fairchild)	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Envoy 3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Boeing Business Jets	**4**	**13**	**7**	**6**	**6**	**12**	**8**	**12**	**7**	**10**	**11**	**4**	**10**	**6**
Boeing Business Jet	3	12	7	3	3	4	8	2	5	3	4	1	0	2
Boeing Business Jet 2	1	1	0	1	0	2	0	2	1	2	1	0	0	0
Boeing Business Jet 3	-	-	-	2	1	4	0	0	0	0	1	0	0	0
Boeing Business Jet Max 7	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Boeing Business Jet Max 8	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Boeing Business Jet Max 9	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Boeing 737–800	-	-	-	-	-	-	-	-	-	-	-	2	1	0
Boeing Business Jet 747	-	-	-	-	-	-	-	8	0	0	0	0	3	0
Boeing Business Jet 767	-	-	-	-	1	0	0	0	0	0	0	0	0	0
Boeing Business Jet 777	-	-	-	-	1	2	0	0	0	1	1	1	3	2
Boeing Business Jet 787	-	-	-	-	-	-	-	-	1	4	4	0	3	0
Bombardier Business Aircraft	**188**	**213**	**224**	**247**	**173**	**150**	**182**	**179**	**180**	**204**	**199**	**162**	**138**	**137**
Learjet 40/XR	21	26	57	48	33	16	24	24	1	-	-	-	-	-
Learjet 45/XR	28	30								-	-	-	-	-
Learjet 60/XR	18	15	23	26	13	12	19	15	10	1	-	-	-	-
Learjet 70/75	-	-	-	-	-	-	-	-	18	33	32	24	14	12
Challenger 300/350	50	55	51	60	33	29	37	48	55	54	68	62	56	60
Challenger 604/605/650	36	29	35	44	36	38	43	34	32	36	25	25	21	23
Global 5000	17	18	46	52	51	49	53	54	62	80	73	51	45	41
Global 6000/Express	13	22												
Global 7500	-	-	-	-	-	-	-	-	-	-	-	-	-	1
CL 850/870/890	5	18	12	17	7	6	6	4	2	0	1	0	2	0
Cirrus Aircraft	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**22**	**63**
SF50	-	-	-	-	-	-	-	-	-	-	-	3	22	63
Dassault Aviation	**51**	**61**	**70**	**72**	**77**	**95**	**63**	**66**	**77**	**66**	**55**	**49**	**49**	**41**
Falcon 50EX	5	5	2	1	-	-	-	-	-	-	-	-	-	-
Falcon 900C	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Falcon 900DX	2	4	10	4	1	3	-	-	-	-	-	-	-	-
Falcon 900EX EASy	16	16	18	19	17	17	1	-	-	-	-	-	-	-
Falcon 900LX	-	-	-	-	-	4	11	7	11	8	-	-	-	-
Falcon 2000	6	6	1	-	-	-	-	-	-	-	-	-	-	-
Falcon 2000DX	-	-	-	3	1	-	-	-	-	-	-	-	-	-
Falcon 2000EX EASy	21	30	33	24	3	-	-	-	-	-	-	-	-	-
Falcon 2000LX	-	-	-	-	23	30	20	22	8	-	-	-	-	-
Falcon 2000LXS	-	-	-	-	-	-	-	-	3	18	-	-	-	-
Falcon 2000S	-	-	-	-	-	-	-	-	12	13	-	-	-	-
Falcon 7X	-	-	6	21	32	41	31	37	43	27	-	-	-	-
Falcon 2000S/2000LXS/900LX/7X/8X	-	-	-	-	-	-	-	-	-	-	55	49	49	41
Embraer	**20**	**27**	**36**	**38**	**122**	**145**	**99**	**99**	**119**	**116**	**120**	**117**	**109**	**91**
Phenom 100/EV	-	-	-	2	97	100	41	29	30	19	12	10	18	11
Phenom 300/E	-	-	-	-	1	26	42	48	60	73	70	63	54	53
Legacy 450	-	-	-	-	-	-	-	-	-	-	3	12	14	14
Legacy 500	-	-	-	-	-	-	-	-	-	3	20	21	15	9
Legacy 600/650E	20	27	36	36	18	11	13	17	21	18	12	9	7	4
Lineage 1000/E190 Head of State	-	-	-	-	5	5	3	2	4	3	3	2	1	0
Shuttles (ERJs and E-Jets)	-	-	-	-	1	3	0	3	4	0	0	0	0	0
Emivest (prev. Sino Swearingen)	**0**	**1**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SJ30-2	-	1	1	0	2	0	0	0	0	0	0	0	0	0
Gulfstream Aerospace Corporation	**89**	**113**	**138**	**156**	**94**	**99**	**99**	**94**	**144**	**150**	**154**	**121**	**120**	**121**
G100/G150 (prev. IAI Astra)														
G200 (prev. IAI Galaxy)	26	42	59	68	19	24	21	11	23	33	34	27	30	29
G280														
G300/350/400/450 (prev. GIV/GIVSP)	63	71	79	88	75	75	78	83	121	117	120	94	90	92
G500/G550 (prev. GV/GVSP), G650, G650ER														
Honda Aircraft Company	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**23**	**43**	**37**
HA-420 HondaJet	-	-	-	-	-	-	-	-	-	-	2	23	43	37
ONE Aviation Corp. (prev. Eclipse Aero)	**0**	**1**	**98**	**161**	**0**	**0**	**0**	**0**	**0**	**12**	**7**	**8**	**6**	**0**
Eclipse 500	-	1	98	161	-	-	-	-	-	-	-	-	-	-
Eclipse 550	-	-	-	-	-	-	-	-	-	12	7	8	6	0
Pilatus	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**
PC-24	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Textron Aviation (Beechcraft)	**141**	**140**	**162**	**160**	**98**	**73**	**52**	**32**	**6**	**0**	**0**	**0**	**0**	**0**
Premier I/A	30	23	54	31	16	11	11	3	-	-	-	-	-	-
Hawker 400XP	53	53	41	35	11	12	1	-	-	-	-	-	-	-
Hawker 750	-	-	-	23	13	5	7	-	-	-	-	-	-	-
Hawker 800XP	58	8	-	-	-	-	1	-	-	-	-	-	-	-
Hawker 850XP	-	56	35	15	3	1	0	-	-	-	-	-	-	-
Hawker 900XP	-	-	32	50	35	28	22	17	-	-	-	-	-	-
Hawker 4000	-	-	-	6	20	16	10	12	6	-	-	-	-	-

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1.4a **Worldwide Business Jet Shipments by Manufacturer (2005–2018)** *Continued*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Textron Aviation (Cessna Aircraft)	**247**	**307**	**388**	**466**	**289**	**178**	**183**	**181**	**139**	**159**	**166**	**178**	**180**	**188**
CE-510 Citation Mustang	-	1	45	101	125	73	43	38	20	8	8	10	7	-
CE-525 Citation CJ1	14	-	-	-	-	-	-	-	-	-	-	-	-	-
CE-525 Citation CJ1+	4	25	34	20	14	3	2	-	-	-	-	-	-	-
CE-525 Citation M2	-	-	-	-	-	-	-	-	12	46	41	38	39	34
CE-525A Citation CJ2	23	1	-	-	-	-	-	-	-	-	-	-	-	-
CE-525A Citation CJ2+	-	36	44	56	21	17	15	19	15	2	-	-	-	-
CE-525B Citation CJ3	48	72	78	88	40	20	22	21	15	6	-	-	-	-
CE-525B Citation CJ3+	-	-	-	-	-	-	-	-	-	10	23	25	26	37
CE-525C Citation CJ4	-	-	-	-	-	19	48	44	33	28	33	29	23	29
CE-550 Citation Bravo	21	18	-	-	-	-	-	-	-	-	-	-	-	-
CE-560 Citation Encore	13	12	-	-	-	-	-	-	-	-	-	-	-	-
CE-560 Citation Encore+	-	-	23	28	5	5	4	-	-	-	-	-	-	-
CE-560 Citation Excel	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CE-560 Citation XLS	64	73	82	72	7	-	-	-	-	-	-	-	-	-
CE-560 Citation XLS+	-	-	-	8	37	22	27	31	31	22	21	19	18	21
CE-680 Citation Sovereign	46	57	65	77	33	16	19	22	5	-	-	-	-	-
CE-680 Citation Sovereign+	-	-	-	-	-	-	-	-	8	28	18	11	9	6
CE-680A Citation Latitude	-	-	-	-	-	-	-	-	-	-	16	42	54	57
CE-750 Citation X	14	12	17	16	7	3	3	6	-	-	-	-	-	-
CE-750 Citation X+	-	-	-	-	-	-	-	-	-	9	6	4	4	4
Total Number of Airplanes	**750**	**887**	**1,137**	**1,317**	**874**	**767**	**696**	**672**	**678**	**722**	**718**	**666**	**677**	**703**
% Change	26.7%	18.3%	28.2%	15.8%	-33.6%	-12.2%	-9.3%	-3.4%	0.9%	6.5%	-0.6%	-7.2%	1.7%	3.8%
Total Billings for Airplanes ($M)	**13,161**	**16,555**	**19,347**	**21,948**	**17,443**	**18,000**	**17,235**	**17,108**	**21,058**	**22,015**	**21,877**	**18,694**	**17,994**	**17,859**
% Change	26.5%	25.8%	16.9%	13.4%	-20.5%	3.2%	-4.2%	-0.7%	23.1%	4.5%	-0.6%	-14.6%	-3.7%	-0.8%

Source: GAMA

1.4b **Worldwide Turboprop Airplane Shipments by Manufacturer (2005–2018)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Air Tractor	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**130**	**168**	**174**	**145**	**113**	**112**	**133**	**141**
AT-402A	n/a	n/a	n/a	n/a	n/a	n/a	0	1	0	0	0	0	5	8
AT-402B	n/a	n/a	n/a	n/a	n/a	n/a	9	21	33	20	11	10	15	25
AT-502A	n/a	n/a	n/a	n/a	n/a	n/a	3	1	2	1	0	8	17	25
AT-502B	n/a	n/a	n/a	n/a	n/a	n/a	57	81	70	61	36	22	32	29
AT-504	n/a	n/a	n/a	n/a	n/a	n/a	4	6	2	3	3	1	5	1
AT-602	n/a	n/a	n/a	n/a	n/a	n/a	10	10	18	14	14	16	7	8
AT-802	n/a	n/a	n/a	n/a	n/a	n/a	26	18	9	10	8	5	6	3
AT-802A	n/a	n/a	n/a	n/a	n/a	n/a	21	30	40	36	29	40	39	34
AT-802AF	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10	3	6	5
AT-802F	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	3	1	3
AVIC General	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**0**
Y12 Series	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	2	0
Daher	**31**	**42**	**46**	**60**	**36**	**38**	**38**	**38**	**40**	**51**	**55**	**54**	**57**	**50**
TBM 700	31	-	-	-	-	-	-	-	-	-	-	-	-	-
TBM 850	-	42	46	60	36	38	38	38	40	-	-	-	-	-
TBM 900	-	-	-	-	-	-	-	-	-	51	55	8	-	-
TBM 910	-	-	-	-	-	-	-	-	-	-	-	-	29	29
TBM 930	-	-	-	-	-	-	-	-	-	-	-	46	28	21
Extra Aircraft	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**2**	**0**	**0**	**0**	**0**
EA500	-	-	-	-	-	-	-	2	1	2	-	-	-	-
Maule Air Incorporated	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
M-7-420AC	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Pacific Aerospace Corporation	**10**	**5**	**10**	**15**	**12**	**11**	**10**	**10**	**6**	**4**	**5**	**8**	**7**	**11**
PAC 750XL	10	5	10	15	12	11	10	10	6	4	5	8	7	11
Piaggio Aerospace	**14**	**19**	**21**	**30**	**24**	**11**	**14**	**5**	**2**	**2**	**3**	**3**	**2**	**4**
P.180 Avanti	13	-	-	-	-	-	-	-	-	-	-	-	-	-
P.180 Avanti II	1	19	21	30	24	11	14	5	2	2	-	-	-	-
P.180 Avanti Evo	-	-	-	-	-	-	-	-	-	-	3	3	2	4
Pilatus	**80**	**90**	**98**	**100**	**105**	**84**	**69**	**67**	**69**	**76**	**74**	**100**	**86**	**83**
PC-6 Porter	n/a	n/a	6	3	5	5	6	5	4	10	4	9	1	3
PC-12	80	90	92	97	100	79	63	62	65	66	70	91	85	80
Piper Aircraft, Inc.	**40**	**49**	**53**	**52**	**29**	**25**	**32**	**32**	**34**	**36**	**27**	**34**	**47**	**56**
PA-46-500 TP Meridian/M500	40	49	53	52	29	25	32	32	34	36	27	12	12	18
PA-46-600 TP M600	-	-	-	-	-	-	-	-	-	-	-	22	35	38
Quest Aircraft Company	**0**	**0**	**1**	**7**	**24**	**14**	**13**	**15**	**28**	**30**	**32**	**36**	**31**	**23**
Kodiak 100	-	-	1	7	24	14	13	15	28	30	32	36	31	23
Textron Aviation (Beechcraft)	**114**	**140**	**157**	**172**	**119**	**90**	**92**	**89**	**135**	**127**	**117**	**106**	**86**	**94**
King Air C90	35	52	46	66	44	28	29	27	27	21	15	11	13	12
King Air B200 / B250	37	42	58	54	37	24	25	22	36	35	28	32	28	30
King Air 350	42	46	53	52	38	38	38	40	72	71	74	63	45	52
Textron Aviation (Cessna Aircraft)	**86**	**67**	**79**	**101**	**97**	**95**	**93**	**107**	**105**	**94**	**102**	**84**	**69**	**92**
CE-208 Caravan 675	11	8	11	12	12	8	10	11	11	13	9	13	10	13
CE-208B Grand Caravan	75	59	68	89	85	87	83	96	94	81	93	71	59	79

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1.4b **Worldwide Turboprop Airplane Shipments by Manufacturer (2005–2018)** *Continued*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Thrush Aircraft, Inc.	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**35**	**51**	**51**	**36**	**29**	**39**	**43**	**38**
S2R-T34	n/a	n/a	n/a	n/a	n/a	n/a	30	39	20	10	8	10	15	16
S2RHG-T65	n/a	n/a	n/a	n/a	n/a	n/a	1	0	1	0	0	2	1	1
S2R-T660	n/a	n/a	n/a	n/a	n/a	n/a	1	0	1	1	7	17	6	6
S2R-G10	n/a	n/a	n/a	n/a	n/a	n/a	3	3	2	1	0	0	0	0
S2R-H80	n/a	n/a	n/a	n/a	n/a	n/a	0	9	27	24	14	10	21	15
Viking Air Ltd.	**0**	**0**	**0**	**0**	**0**	**0**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**9**
DHC-6 Series 400 Twin Otter	-	-	-	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9
Total Number of Airplanes	**375**	**412**	**465**	**538**	**446**	**368**	**526**	**584**	**645**	**603**	**557**	**582**	**563**	**601**
% Change	17.6%	9.9%	12.9%	15.7%	-17.1%	-17.5%	n/a	11.0%	10.4%	-6.5%	-7.6%	3.4%	-3.3%	5.2%
Total Billings for Airplanes ($M)	**1,189**	**1,389**	**1,593**	**1,953**	**1,589**	**1,300**	**1,365**	**1,359**	**1,821**	**1,849**	**1,651**	**1,705**	**1,490**	**1,781**
% Change	19.3%	16.9%	14.6%	22.7%	-18.7%	-18.2%	n/a	-0.4%	33.9%	1.5%	-10.7%	3.3%	-12.6%	19.6%

Source: GAMA

1.4c **Worldwide Piston-Engine Airplane Shipments by Manufacturer (2005–2018)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Adam Aircraft	**2**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
A500	2	4	3	-	-	-	-	-	-	-	-	-	-	-
Air Tractor	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**0**
AT-401B	-	-	-	-	-	-	-	1	0	1	1	0	1	0
Alpha Aviation	**0**	**5**	**13**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
120T	-	-	2	-	-	-	-	-	-	-	-	-	-	-
160A	-	5	9	1	-	-	-	-	-	-	-	-	-	-
160Ai	-	-	2	0	-	-	-	-	-	-	-	-	-	-
American Champion	**89**	**60**	**70**	**54**	**26**	**37**	**29**	**18**	**26**	**30**	**19**	**19**	**15**	**13**
7EC Champ	-	1	21	7	1	0	3	0	3	1	1	2	0	0
7ECA Citabria Aurora	3	2	4	3	2	2	1	0	0	2	1	0	0	2
7GCAA Citabria Adventurer	12	6	6	2	1	2	0	0	0	0	0	0	0	2
7GCBC Citabria Explorer	26	16	8	8	4	4	6	3	1	3	0	1	2	1
8GCBC Scout	9	14	8	10	8	15	13	7	6	7	6	10	8	5
8KCAB Super Decathlon	39	21	23	24	10	14	6	8	10	14	6	6	5	3
8KCAB Xtreme Decathlon	-	-	-	-	-	-	-	-	6	3	5	0	0	0
Aviat Aircraft	**47**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
A-1B Husky	41	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Husky Pup	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
S-2C Pitts	5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AVIC General	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**22**	**16**
Y5B	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	5	4
LE500	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11	5	2
A2C	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11	12	10
Columbia Aircraft (prev. Lancair)	**114**	**185**	**152**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Columbia 300	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Columbia 350	25	39	34	-	-	-	-	-	-	-	-	-	-	-
Columbia 400	89	146	118	-	-	-	-	-	-	-	-	-	-	-
Cirrus Aircraft	**600**	**721**	**710**	**549**	**266**	**264**	**255**	**253**	**276**	**308**	**301**	**317**	**355**	**380**
Cirrus SR20	116	150	112	115	28	42	48	84	32	31	31	35	46	65
Cirrus SR22	475	565	588	427	238	165	105	81	112	117	128	133	135	135
Cirrus SR22T	-	-	-	-	-	57	102	88	132	160	142	149	174	180
Cirrus SRV	9	6	10	7	-	-	-	-	-	-	-	-	-	-
CubCrafters	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**47**	**58**	**63**	**60**	**52**	**34**	**27**	**19**
CC11-100 Sport Cub S2	n/a	n/a	n/a	n/a	n/a	n/a	2	0	2	0	0	0	1	0
CC11-160 Carbon Cub SS	n/a	n/a	n/a	n/a	n/a	n/a	38	57	52	53	47	24	6	3
CC18-180 Top Cub	n/a	n/a	n/a	n/a	n/a	n/a	7	1	9	7	5	2	6	7
CC19-180 XCub	-	-	-	-	-	-	-	-	-	-	-	8	14	9
Daher	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TB-9 Tampico	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TB-10	4	-	-	-	-	-	-	-	-	-	-	-	-	-
TB-20	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TB-21	3	-	-	-	-	-	-	-	-	-	-	-	-	-
TB-200	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Diamond Aircraft	**329**	**438**	**471**	**308**	**163**	**130**	**185**	**156**	**139**	**202**	**144**	**132**	**137**	**134**
HK-36	-	-	-	-	13	10	3	3	1	0	1	0	0	0
DA-20	54	55	58	69	14	31	40	32	14	16	22	20	8	3
DA-40	207	220	232	154	98	57	72	93	102	136	75	48	60	45
DA-42	68	163	181	85	38	32	70	28	22	50	44	34	36	50
DA-62	-	-	-	-	-	-	-	-	-	-	2	30	33	36
Discovery Aviation (prev. Liberty)	**2**	**29**	**38**	**33**	**13**	**14**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
XL2	2	29	38	33	13	14	3	0	0	0	0	0	0	0
Extra Aircraft	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**27**	**29**	**31**	**27**	**27**	**25**	**24**
EA300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	27	29	31	27	27	25	24
Flight Design GmbH	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**89**	**76**	**89**	**88**	**59**	**23**	**32**	**43**
ASTM CT Series	n/a	n/a	n/a	n/a	n/a	n/a	89	76	89	88	59	23	32	43
ICON Aircraft	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**10**	**44**
A5	-	-	-	-	-	-	-	-	-	-	-	5	10	44

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1.4c **Worldwide Piston-Engine Airplane Shipments by Manufacturer (2005–2018)** *Continued*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mahindra Aerospace (prev. GippsAero)	**22**	**20**	**17**	**19**	**11**	**14**	**10**	**14**	**12**	**17**	**14**	**9**	**9**	**7**
Airvan 8	22	20	17	19	11	14	10	14	12	17	14	9	9	7
Maule Air Incorporated	**27**	**38**	**36**	**27**	**7**	**4**	**4**	**9**	**6**	**2**	**13**	**3**	**0**	**0**
M-4-180A, V	1	7	5	-	-	-	-	-	-	1	-	-	-	-
M-7-235, A, B, C	11	8	6	7	1	3	-	1	-	1	-	1	n/a	n/a
M-7-260, C	4	2	4	4	4	-	1	3	4	-	-	1	n/a	n/a
MT-7-235	2	9	2	6	2	-	-	1	-	-	-	-	-	-
MT-7-260	2	4	-	-	-	-	-	-	-	-	-	-	-	-
MX-7-180, A, B, C, AC	3	4	6	4	-	1	1	1	1	-	12	1	n/a	n/a
MXT-7-160	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MXT-7-180, A, AC	4	4	12	6	-	-	2	3	-	-	-	-	-	-
M-8-235	-	-	1	-	-	-	-	-	-	-	-	-	-	-
M-9-235	-	-	-	-	-	-	-	-	1	-	1	-	n/a	n/a
Mooney International Corporation	**85**	**75**	**79**	**65**	**19**	**2**	**0**	**0**	**0**	**1**	**11**	**7**	**7**	**14**
M20M Bravo	20	5	1	-	-	-	-	-	-	-	-	-	-	-
M20R Ovation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M20R Ovation 2	65	63	20	21	4	0	0	0	0	0	3	1	2	-
M20U Ovation Ultra	-	-	-	-	-	-	-	-	-	-	-	-	1	7
M20S Eagle 2	-	-	-	-	-	-	-	-	-	-	8	-	-	-
M20TN Acclaim	-	7	58	44	15	2	0	0	0	1	0	6	1	-
M20V Acclaim Ultra	-	-	-	-	-	-	-	-	-	-	-	-	3	7
Piper Aircraft, Inc.	**193**	**189**	**168**	**216**	**61**	**135**	**104**	**126**	**154**	**136**	**111**	**93**	**108**	**173**
PA-28-161 Warrior III	37	19	27	23	8	23	15	20	2	3	20	5	0	0
PA-28-181 Archer III	16	29	16	7	1	21	2	4	48	45	25	42	72	107
PA-28R-201 Arrow IV	9	5	8	1	0	4	0	2	1	8	5	7	9	7
PA-32-301FT Piper 6X	18	10	12	0	-	-	-	-	-	-	-	-	-	-
PA-32-301XTC Piper 6XT	16	11	-	-	-	-	-	-	-	-	-	-	-	-
PA-32R-301 Saratoga II HP	8	10	-	-	-	-	-	-	-	-	-	-	-	-
PA-32-301T Saratoga II TC	37	37	39	12	-	-	-	-	-	-	-	-	-	-
PA-34-220T Seneca V	12	26	22	27	7	22	21	17	22	10	8	3	1	2
PA-44-180 Seminole	29	11	14	24	5	16	16	22	23	22	17	10	17	37
PA-46-350P Malibu Mirage/M350	11	31	30	21	7	26	33	49	42	37	34	26	9	20
PA-46R-350T Matrix	-	-	-	101	33	23	17	12	16	11	2	-	-	-
Pipistrel	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**22**
SW 121 Virus	-	-	-	-	-	-	-	-	-	-	-	-	19	22
Quartz Mountain Aerospace	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
QMA 11E	-	-	-	11	-	-	-	-	-	-	-	-	-	-
Symphony Aircraft (prev. OMF)	**10**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Symphony 160	10	5	-	-	-	-	-	-	-	-	-	-	-	-
TECNAM Aircraft	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**197**	**190**	**191**	**191**	**171**	**180**
ASTM - LSA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	108	108	102	73	72	63
P2002JF	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	33	18	20	33	20	18
P92JS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	15	7	4	7	3	3
P2002JR	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	0	0	0	0	0
P2008JC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	19	36	24	24	19	35
P2006T	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	20	21	21	32	39	41
P2010P Twenty Ten	-	-	-	-	-	-	-	-	-	-	20	22	18	20
Textron Aviation (Beechcraft)	**99**	**118**	**111**	**103**	**56**	**51**	**54**	**36**	**70**	**72**	**41**	**45**	**36**	**34**
Beechcraft Bonanza A/G36	71	80	73	63	36	22	24	12	35	32	23	25	13	15
Beechcraft Baron B/G58	28	38	38	40	20	29	30	24	35	40	18	20	23	19
Textron Aviation (Cessna Aircraft)	**822**	**865**	**807**	**733**	**355**	**261**	**413**	**283**	**206**	**220**	**271**	**217**	**238**	**193**
CE-162 SkyCatcher	-	-	-	-	1	22	168	19	-	-	-	-	-	-
CE-172R Skyhawk	37	87	133	55	16	8	26	27	0	0	-	-	-	-
CE-172S Skyhawk SP	314	322	240	228	110	77	77	113	106	155	143	100	129	129
CE-182T Skylane	241	140	161	109	58	64	40	48	13	0	33	50	46	31
CE-T182T Turbo Skylane	118	187	140	105	75	36	37	19	26	0	-	-	-	-
CE-206H Stationair	29	25	20	17	3	4	11	16	3	0	-	-	-	-
CE-T206H Turbo Stationair	83	104	111	95	46	42	53	40	37	43	51	36	40	32
CE-350 Corvalis	-	-	1	14	5	1	0	1	0	0	-	-	-	-
CE-240 TTx (prev. CE-400 Corvalis TTx)	-	-	1	110	41	7	1	0	21	22	44	31	23	1
Tiger Aircraft	**15**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AG-5B Tiger	15	3	-	-	-	-	-	-	-	-	-	-	-	-
WACO Classic Aircraft	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**5**	**6**	**7**	**11**	**10**	**7**	**6**	**6**
2T-1A-2	-	-	-	-	-	-	-	-	1	6	6	3	1	1
YMF-5D	n/a	n/a	n/a	n/a	n/a	n/a	5	6	6	5	4	4	5	5
XtremeAir GmbH	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**9**	**9**	**8**	**9**	**0**	**0**	**0**	**0**
XA41	n/a	n/a	n/a	n/a	n/a	n/a	4	2	2	0	n/a	n/a	n/a	n/a
XA42	n/a	n/a	n/a	n/a	n/a	n/a	5	7	6	9	n/a	n/a	n/a	n/a
Total Number of Airplanes	**2,465**	**2,755**	**2,675**	**2,119**	**977**	**912**	**1,207**	**1,072**	**1,282**	**1,378**	**1,265**	**1,155**	**1,218**	**1,302**
% Change	20.2%	11.8%	-2.9%	-20.8%	-53.9%	-6.7%	n/a	-11.2%	n/a	7.5%	-8.2%	-8.7%	5.5%	6.9%
Total Billings for Airplanes ($M)	**805**	**857**	**897**	**945**	**442**	**415**	**441**	**428**	**571**	**635**	**601**	**661**	**718**	**866**
% Change	16.3%	6.5%	4.7%	5.3%	-53.1%	-7.7%	n/a	-3.0%	n/a	11.1%	-5.3%	10.0%	8.6%	20.7%

Table 1.4c includes all piston engine airplanes delivered by the manufacturers listed, including type-certified piston-engine airplanes under airworthiness standards other than Part/CS-23, such as those type certified under EASA CS-Very Light Aircraft and CS-Light Sport Aircraft, as well as Special Light Sport Aircraft.

Source: GAMA

1.4d Worldwide Rotorcraft Shipments by Manufacturer (2005–2018) Civil-Commercial and Military-Government Combined

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Airbus Helicopters	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**507**	**440**	**451**	**418**	**360**	**380**	**369**	**323**
HC120 (prev. EC120)	n/a	n/a	n/a	n/a	n/a	n/a	10	11	12	7	2	5	5	0
AS350 B2	n/a	n/a	n/a	n/a	n/a	n/a	59	36	32	23	9	7	0	0
H125/H125M (prev. EC125/AS350 B3e/AS550 C3e)	n/a	n/a	n/a	n/a	n/a	n/a	150	130	187	134	95	104	125	136
H130 (prev. EC130)	n/a	n/a	n/a	n/a	n/a	n/a	42	43	35	58	69	54	35	23
AS355 NP/AS555 AP	n/a	n/a	n/a	n/a	n/a	n/a	7	8	5	3	3	7	1	0
H135/H135M (prev. EC135/EC635)	n/a	n/a	n/a	n/a	n/a	n/a	74	67	48	42	35	40	55	43
H145/H145M (prev. EC145/EC645/UH-72A)	n/a	n/a	n/a	n/a	n/a	n/a	89	82	69	73	68	107	93	79
AS365 N3/AS565 Mbe	n/a	n/a	n/a	n/a	n/a	n/a	14	11	8	4	7	11	16	2
H155 (prev. EC155)	n/a	n/a	n/a	n/a	n/a	n/a	12	7	10	10	10	3	3	2
H175 (prev. EC175)	-	-	-	-	-	-	-	-	-	3	4	4	11	11
H215/H215M (prev. AS332/AS532)	n/a	n/a	n/a	n/a	n/a	n/a	4	3	4	6	7	10	3	7
H225/H225M (prev. EC225/EC725)	n/a	n/a	n/a	n/a	n/a	n/a	26	32	30	43	35	9	5	11
TIGER	n/a	n/a	n/a	n/a	n/a	n/a	20	10	11	12	16	19	17	9
Bell Helicopter	**123**	**159**	**181**	**175**	**165**	**139**	**188**	**247**	**279**	**239**	**223**	**171**	**192**	**245**
505	-	-	-	-	-	-	-	-	-	-	-	-	27	116
206B	16	20	28	18	22	5	-	-	-	-	-	-	-	-
206L/LT	22	21	24	21	16	15	14	9	11	13	12	10	4	2
407/GX/GXP	41	67	73	79	81	62	55	85	110	86	99	57	44	43
412/EP/EPI	29	35	39	36	28	28	20	39	36	26	12	10	13	11
427	5	7	10	7	4	1	4	4	-	-	-	-	-	-
429/WLG	-	-	-	-	2	21	28	43	56	53	52	28	36	20
430	10	9	7	3	-	-	-	-	-	-	-	-	-	-
Huey II	-	-	-	11	12	7	4	8	-	-	-	9	8	0
H-1	n/a	n/a	n/a	n/a	n/a	n/a	28	21	25	24	24	35	38	34
V22	n/a	n/a	n/a	n/a	n/a	n/a	35	38	41	37	24	22	22	19
Brantly	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
B-2B	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Enstrom Helicopter Corp.	**29**	**23**	**19**	**10**	**6**	**4**	**n/a**	**16**	**27**	**26**	**20**	**12**	**5**	**22**
F-28/280	15	10	6	1	1	1	n/a	2	4	2	5	3	1	14
480	14	13	13	9	5	3	n/a	14	23	24	15	9	4	8
Hélicoptères Guimbal	**0**	**0**	**0**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**27**	**44**	**50**	**35**	**25**
Cabri G2	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	27	44	50	35	25
Leonardo Helicopters (prev. AgustaWestland)	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**214**	**180**	**160**	**172**	**148**	**n/a**
AW119Kx	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	22	17	16	22	25	n/a
AW109 Power	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	7	8	0	8	n/a
AW109 Trekker	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a
AW109 GrandNew	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	35	14	14	17	14	n/a
AW139	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	118	101	72	63	45	n/a
AW169	-	-	-	-	-	-	-	-	-	-	1	22	26	n/a
AW149	-	-	-	-	-	-	-	-	-	-	-	-	2	n/a
AW189	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	10	16	7	14	n/a
AW159	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	15	11	13	19	0	n/a
SUPER LYNX	-	-	-	-	-	-	-	-	-	-	4	1	1	n/a
T129	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	5	4	10	8	n/a
AW101	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5	5	5	3	3	n/a
CH47F	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	5	3	5	2	n/a
SW4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0	0	3	0	n/a
W3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10	5	4	0	0	n/a
MD Helicopters	**3**	**13**	**18**	**52**	**40**	**12**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
500	0	n/a	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
520N	2	n/a	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
530	0	n/a	2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
600	1	n/a	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
900	0	n/a	7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
NH Industries	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**33**	**35**	**43**	**53**	**35**	**38**	**40**	**36**
NH90	n/a	n/a	n/a	n/a	n/a	n/a	33	35	43	53	35	38	40	36
Robinson Helicopter Company	**806**	**749**	**823**	**893**	**433**	**162**	**356**	**517**	**523**	**329**	**347**	**234**	**305**	**316**
R22	243	97	159	164	25	40	56	40	42	42	34	19	34	33
R44 Cadet	-	-	-	-	-	-	-	-	-	-	-	-	20	18
R44 Raven I / II	563	652	664	729	408	112	212	286	289	186	196	152	174	191
R66	-	-	-	-	-	10	88	191	192	101	117	63	77	74
Schweizer Aircraft	**58**	**61**	**70**	**51**	**27**	**29**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
300C	12	12	11	16	10	14	n/a	n/a	-	-	-	-	-	-
300CB/300CBi	40	44	51	27	13	6	n/a	n/a	-	-	-	-	-	-
330/333	6	5	8	8	4	9	n/a	n/a	-	-	-	-	-	-
Sikorsky Aircraft Corp.	**49**	**52**	**79**	**78**	**58**	**42**	**249**	**227**	**231**	**231**	**178**	**181**	**172**	**122**
S-70	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S-76	30	36	50	53	34	21	16	5	26	17	13	5	4	1
S-92	19	16	29	25	24	21	20	30	37	42	16	7	3	4
Blackhawk	n/a	n/a	n/a	n/a	n/a	n/a	213	192	125	123	106	133	134	107
Seahawk	n/a	n/a	n/a	n/a	n/a	n/a			43	49	43	36	31	10
CH-53K	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Number of Rotorcraft	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**1,768**	**1,503**	**1,367**	**1,238**	**1,266**	**n/a**
% Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-15.1%	-8.9%	-9.4%	2.3%	n/a

Leonardo Helicopters fourth quarter data is not available at the time of publication. Leonardo Helicopters will release year-end results in mid-March 2019. GAMA will update the online 2018 report at www.GAMA.aero.

Source: GAMA, Aerospace Industries Association, and company reports

1.5 U.S.-Manufactured General Aviation Airplane Shipments by Type (1949–2018)

Year	Grand Total	Single-Engine Piston	Multi-Engine Piston	Total Piston	Turboprop	Business Jet	Total Turbine	Companies Reporting	Factory Net Billings ($ Millions)
1949	**3,405**	n/a	n/a	**3,405**	-	-	-	11	$18
1950	**3,386**	n/a	n/a	**3,386**	-	-	-	13	$19
1951	**2,302**	n/a	n/a	**2,302**	-	-	-	12	$17
1952	**3,058**	n/a	n/a	**3,058**	-	-	-	8	$27
1953	**3,788**	n/a	n/a	**3,788**	-	-	-	7	$34
1954	**3,071**	n/a	n/a	**3,071**	-	-	-	7	$43
1955	**4,434**	n/a	n/a	**4,434**	-	-	-	7	$68
1956	**6,738**	n/a	n/a	**6,738**	-	-	-	8	$104
1957	**6,118**	n/a	n/a	**6,118**	-	-	-	9	$100
1958	**6,414**	n/a	n/a	**6,414**	-	-	-	10	$102
1959	**7,689**	6,849	840	**7,689**	-	-	-	9	$130
1960	**7,588**	6,569	1,019	**7,588**	-	-	-	8	$151
1961	**6,756**	5,995	761	**6,756**	-	-	-	8	$124
1962	**6,697**	5,690	1,007	**6,697**	-	-	-	7	$137
1963	**7,569**	6,248	1,321	**7,569**	-	-	-	7	$153
1964	**9,336**	7,718	1,606	**9,324**	9	3	**12**	8	$199
1965	**11,852**	9,873	1,780	**11,653**	87	112	**199**	8	$318
1966	**15,768**	13,250	2,192	**15,442**	165	161	**326**	10	$445
1967	**13,577**	11,557	1,773	**13,330**	149	98	**247**	14	$360
1968	**13,698**	11,398	1,959	**13,357**	248	93	**341**	14	$426
1969	**12,457**	10,054	2,078	**12,132**	214	111	**325**	14	$585
1970	**7,292**	5,942	1,159	**7,101**	135	56	**191**	13	$337
1971	**7,466**	6,287	1,043	**7,330**	89	47	**136**	11	$322
1972	**9,774**	7,898	1,548	**9,446**	179	149	**328**	12	$558
1973	**13,646**	10,780	2,413	**13,193**	247	206	**453**	12	$828
1974	**14,166**	11,562	2,135	**13,697**	250	219	**469**	12	$909
1975	**14,056**	11,439	2,116	**13,555**	305	196	**501**	12	$1,033
1976	**15,449**	12,783	2,120	**14,903**	359	187	**546**	12	$1,226
1977	**16,907**	14,057	2,195	**16,252**	428	227	**655**	12	$1,488
1978	**17,811**	14,398	2,634	**17,032**	548	231	**779**	12	$1,781
1979	**17,050**	13,286	2,843	**16,129**	639	282	**921**	12	$2,165
1980	**11,860**	8,640	2,116	**10,756**	778	326	**1,104**	12	$2,486
1981	**9,457**	6,608	1,542	**8,150**	918	389	**1,307**	12	$2,920
1982	**4,266**	2,871	678	**3,549**	458	259	**717**	11	$2,000
1983	**2,691**	1,811	417	**2,228**	321	142	**463**	10	$1,470
1984	**2,431**	1,620	371	**1,991**	271	169	**440**	9	$1,681
1985	**2,029**	1,370	193	**1,563**	321	145	**466**	9	$1,431
1986	**1,495**	985	138	**1,123**	250	122	**372**	9	$1,262
1987	**1,085**	613	87	**700**	263	122	**385**	9	$1,364
1988	**1,143**	628	67	**695**	291	157	**448**	11	$1,923
1989	**1,535**	1,023	87	**1,110**	268	157	**425**	11	$1,804
1990	**1,144**	608	87	**695**	281	168	**449**	14	$2,008
1991	**1,021**	564	49	**613**	222	186	**408**	14	$1,968
1992	**941**	552	41	**593**	177	171	**348**	16	$1,840
1993	**964**	516	39	**555**	211	198	**409**	16	$2,144
1994	**929**	444	55	**499**	208	222	**430**	13	$2,357
1995	**1,077**	515	61	**576**	255	246	**501**	13	$2,842
1996	**1,171**	607	42	**649**	289	233	**522**	13	$3,048
1997	**1,562**	898	86	**984**	236	342	**578**	12	$4,593
1998	**2,212**	1,434	94	**1,528**	271	413	**684**	12	$5,761
1999	**2,530**	1,634	114	**1,748**	265	517	**782**	13	$7,843
2000	**2,816**	1,810	103	**1,913**	315	588	**903**	15	$8,558
2001	**2,631**	1,581	147	**1,728**	303	600	**903**	14	$8,641
2002	**2,207**	1,366	130	**1,496**	187	524	**711**	12	$7,719
2003	**2,137**	1,519	71	**1,590**	163	384	**547**	13	$6,434
2004	**2,355**	1,706	52	**1,758**	194	403	**597**	13	$6,816
2005	**2,857**	2,024	71	**2,095**	240	522	**762**	13	$8,667
2006	**3,147**	2,208	79	**2,287**	256	604	**860**	16	$10,367
2007	**3,279**	2,097	77	**2,174**	290	815	**1,105**	16	$11,941
2008	**3,079**	1,700	91	**1,791**	333	955	**1,288**	15	$13,348
2009	**1,585**	770	32	**802**	269	514	**783**	13	$9,082
2010	**1,334**	679	67	**746**	224	364	**588**	12	$7,875
2011	**1,465**	639	67	**706**	395	364	**759**	16	$8,266
2012	**1,518**	645	63	**708**	463	347	**810**	17	$8,017
2013	**1,615**	674	80	**754**	527	334	**861**	17	$11,069
2014	**1,631**	716	72	**788**	468	375	**843**	16	$11,688
2015	**1,592**	740	43	**783**	420	389	**809**	17	$11,982
2016	**1,531**	685	33	**718**	411	402	**813**	18	$11,560
2017	**1,599**	745	41	**786**	409	404	**813**	18	$10,641
2018	**1,746**	771	58	**829**	444	473	**917**	18	$11,598

Source: GAMA

1.6 U.S.-Manufactured General Aviation Airplane Billings (in Millions of Dollars) by Type (2000–2018)

Year	Grand Total	Single-Engine Piston	Multi-Engine Piston	Total Piston	Turboprop	Business Jet	Total Turbine
2000	**8,558**	n/a	n/a	**446**	934	7,178	**8,112**
2001	**8,641**	n/a	n/a	**471**	742	7,428	**8,170**
2002	**7,719**	n/a	n/a	**389**	487	6,843	**7,330**
2003	**6,434**	n/a	n/a	**440**	411	5,583	**5,994**
2004	**6,816**	n/a	n/a	**568**	555	5,693	**6,248**
2005	**8,667**	n/a	n/a	**712**	749	7,205	**7,954**
2006	**10,367**	n/a	n/a	**722**	853	8,792	**9,645**
2007	**11,941**	n/a	n/a	**712**	1,001	10,227	**11,228**
2008	**13,348**	n/a	n/a	**836**	1,172	11,340	**12,513**
2009	**9,082**	n/a	n/a	**389**	872	7,821	**8,693**
2010	**7,875**	n/a	n/a	**368**	724	6,782	**7,506**
2011	**8,266**	n/a	n/a	**368**	831	7,068	**7,898**
2012	**8,017**	n/a	n/a	**374**	867	6,776	**7,643**
2013	**11,069**	n/a	n/a	**456**	1,358	9,255	**10,613**
2014	**11,688**	n/a	n/a	**484**	1,316	9,888	**11,204**
2015	**11,982**	n/a	n/a	**477**	1,282	10,224	**11,506**
2016	**11,560**	n/a	n/a	**511**	1,180	9,869	**11,049**
2017	**10,641**	n/a	n/a	**557**	1,032	9,053	**10,085**
2018	**11,598**	n/a	n/a	**691**	1,151	9,756	**10,907**

Source: GAMA

1.7 U.S.-Manufactured General Aviation Airplane Exports by Type and Billings (2000–2018)

Year	Single-Engine Piston	Multi-Engine Piston	Turboprop	Business Jet	Total Airplanes Exported		Billings Exported	
					Units	% of Shipments	(in $ Millions)	% of Total Billings
2000	285	24	112	148	569	20.2%	$1,957.5	22.9%
2001	175	42	118	170	505	19.2%	$2,380.6	27.5%
2002	135	23	79	136	372	16.8%	$1,980.9	25.4%
2003	168	22	52	94	336	15.7%	$1,218.2	18.9%
2004	181	9	55	88	333	14.1%	$1,419.6	20.8%
2005	301	18	66	172	557	19.5%	$2,585.9	29.8%
2006	535	30	74	252	891	28.3%	$4,395.5	42.4%
2007	665	33	131	313	1,142	34.8%	$4,587.0	38.4%
2008	556	40	175	410	1,181	37.7%	$5,863.8	43.9%
2009	341	15	121	255	732	46.2%	$4,612.7	50.8%
2010	299	45	151	194	689	51.6%	$4,867.8	61.8%
2011	249	50	121	112	532	36.3%	$4,585.8	55.5%
2012	263	40	243	174	720	47.7%	$4,791.1	59.8%
2013	255	49	245	142	691	42.8%	$5,616.9	50.7%
2014	273	37	248	138	696	42.7%	$5,419.2	46.4%
2015	170	23	203	128	524	32.9%	$5,431.2	45.3%
2016	161	12	156	124	453	29.6%	$4,451.3	38.5%
2017	193	11	210	127	541	33.8%	$4,347.9	40.9%
2018	269	27	244	140	680	38.9%	$4,896.3	42.2%

Source: GAMA

1.8 European-Manufactured General Aviation Airplane Shipments by Type (2008–2018)

Year	Grand Total	Single-Engine Piston	Multi-Engine Piston	Total Piston	Turboprop	Business Jet	Total Turbine	Companies Reporting	Factory Net Billings ($ Millions)
2008	**579**	223	85	**308**	190	81	**271**	6	$3,966.6
2009	**416**	125	38	**163**	165	88	**253**	6	$4,552.5
2010	**380**	98	41	**139**	133	108	**241**	6	$5,556.0
2011	**468**	204	70	**274**	121	73	**194**	7	$3,987 .9
2012	**446**	231	28	**259**	112	75	**187**	8	$4,063 .3
2013	**657**	420	42	**462**	112	83	**195**	10	$4,533.9
2014	**722**	449	71	**520**	131	71	**202**	10	$3,825.3
2015	**612**	354	67	**421**	132	59	**191**	9	$3,736.2
2016	**580**	277	96	**373**	157	50	**207**	9	$3,008.6
2017	**578**	276	108	**384**	145	49	**194**	9	$3,234.3
2018	**600**	276	127	**403**	137	60	**197**	9	$3,042.3

An aircraft is considered manufactured in Europe when produced under an EASA production approval.
EASA rules require production approvals for all aircraft including CS-VLA and CS-SLSA models.

Source: GAMA

CHAPTER **TWO**

CANADA AND U.S. GENERAL AVIATION FLEET, FLIGHT ACTIVITY AND FORECAST

2.1 **Canada—Registered Aircraft by Type and Weight Group (1983–2018)**

Year	Number of Registered Aircraft by Type									By Weight Group		Total Aircraft
	Aeroplanes	Ultralights	Amateur-Builts	Helicopters	Gliders	Balloons	Gyroplanes	Airships	Ornithopters	≤ 12,500 lbs	12,500 > lbs	
1983	22,354	1,282	n/a	1,410	560	177	116	n/a	n/a	n/a	n/a	**25,899**
1984	22,330	1,971	n/a	1,326	572	197	118	n/a	n/a	n/a	n/a	**26,514**
1985	22,231	2,376	n/a	1,276	582	219	117	n/a	n/a	n/a	n/a	**26,801**
1986	22,105	2,706	n/a	1,264	589	247	116	n/a	n/a	n/a	n/a	**27,027**
1987	22,270	2,946	n/a	1,299	602	279	121	n/a	n/a	n/a	n/a	**27,517**
1988	22,469	3,105	n/a	1,338	613	308	122	n/a	n/a	n/a	n/a	**27,955**
1989	22,463	3,212	n/a	1,366	614	339	127	n/a	n/a	n/a	n/a	**28,121**
1990	22,278	3,363	n/a	1,416	609	361	128	n/a	n/a	27,173	982	**28,155**
1991	21,973	3,477	n/a	1,433	601	384	135	n/a	n/a	23,553	981	**28,003**
1992	21,795	3,607	n/a	1,502	602	405	155	n/a	n/a	27,070	996	**28,066**
1993	21,452	3,744	n/a	1,533	597	424	162	n/a	n/a	26,977	935	**27,912**
1994	21,212	3,840	n/a	1,582	601	444	169	n/a	n/a	26,885	963	**27,848**
1995	21,169	3,956	n/a	1,605	601	440	166	n/a	n/a	26,914	1,023	**27,937**
1996	21,089	4,070	n/a	1,643	592	440	168	n/a	n/a	26,919	1,084	**28,002**
1997	20,985	4,208	n/a	1,655	587	450	169	n/a	n/a	26,862	1,192	**28,054**
1998	20,830	4,305	2,457	1,676	592	440	174	n/a	n/a	26,809	1,208	**28,017**
1999	20,768	4,346	2,540	1,711	596	442	181	2	1	26,783	1,264	**28,047**
2000	25,256	4,467	2,621	1,753	600	444	186	2	1	26,922	1,320	**28,242**
2001	25,435	4,584	2,709	1,798	613	453	190	3	1	27,171	1,322	**28,493**
2002	25,650	4,746	2,778	1,831	617	453	189	3	1	27,374	1,370	**28,744**
2003	25,902	4,922	2,895	1,894	674	450	188	3	1	27,752	1,360	**29,112**
2004	26,335	5,123	2,996	1,940	686	459	189	4	1	28,166	1,448	**29,614**
2005	26,870	5,339	3,124	2,019	683	475	192	4	1	28,745	1,499	**30,244**
2006	27,512	5,568	3,255	2,145	687	478	191	4	1	29,422	1,596	**31,018**
2007	28,195	5,745	3,380	2,317	695	481	192	5	1	30,223	1,663	**31,886**
2008	29,043	5,985	3,514	2,504	703	486	191	5	1	31,154	1,779	**32,933**
2009	29,567	6,184	3,639	2,576	715	479	190	5	1	31,709	1,824	**33,533**
2010	30,118	6,396	3,748	2,658	713	486	194	5	1	32,330	1,845	**34,175**
2011	30,805	6,585	3,885	2,728	720	490	198	5	1	32,986	1,961	**34,947**
2012	31,341	6,803	3,984	2,776	722	500	195	5	1	33,563	1,977	**35,540**
2013	31,780	6,973	4,074	2,849	726	511	206	5	1	34,050	2,028	**36,078**
2014	32,045	7,125	4,141	2,871	725	517	214	1	1	34,310	2,064	**36,374**
2015	32,127	7,246	4,185	2,853	721	516	222	0	1	34,359	2,081	**36,440**
2016	32,138	7,355	4,213	2,836	717	517	227	0	1	34,355	2,081	**36,436**
2017	32,279	7,459	4,248	2,830	723	523	232	0	1	34,473	2,115	**36,588**
2018	32,405	7,590	4,285	2,848	721	515	233	0	1	34,600	2,123	**36,723**

Source: Transport Canada and Canadian Civil Aircraft Registry, www.tc.gc.ca

2.2 Active U.S. General Aviation and On-Demand Part 135 Aircraft by Primary Use and Aircraft Type (2017)

		General Aviation FAR Part 91 Use												On-Demand FAR Part 135 Use		
Aircraft Type	**Total Active (77.4% of 273,748)**	**Personal/ Recre-ational**	**Business (w/o crew)**	**Business (with crew)**	**Instruc-tional**	**Aerial Apps.**	**Aerial Obs.**	**Other Aerial App.**	**External Load**	**Other Work**	**Sight-seeing**	**Air Medical**	**Other**	**Air Taxi**	**Air Tours**	**Air Medical**
Total All Aircraft	**211,757**	**139,748**	**17,267**	**11,112**	**16,123**	**4,134**	**4,437**	**1,389**	**256**	**1,666**	**1,303**	**383**	**4,456**	**6,491**	**525**	**2,466**
% Std. Error	1.4%	2.0%	1.7%	1.0%	1.6%	1.1%	1.3%	1.0%	0.9%	1.3%	1.4%	1.6%	1.4%	0.8%	0.7	0.6
Piston Total	**142,916**	**105,194**	**13,361**	**1,428**	**12,792**	**1,397**	**2,295**	**318**	**-**	**847**	**357**	**215**	**2,906**	**1,567**	**50**	**188**
One-Engine Piston	129,833	98,314	10,806	671	11,566	1,330	2,111	212	-	834	341	188	2,382	920	29	130
Two-Engine Piston	13,083	6,881	2,554	757	1,226	67	184	107	-	-	-	27	525	646	21	58
Turboprop Total	**9,949**	**1,471**	**1,500**	**1,812**	**125**	**2,100**	**135**	**316**	**-**	**208**	**18**	**-**	**325**	**1,660**	**17**	**231**
One-Engine Turboprop	4,800	701	744	390	44	1,670	48	185	8	54	8	-	209	645	17	76
Two-Engine Turboprop	5,149	770	757	1,422	81	431	88	131	-	155	10	17	116	1,016	-	155
Business Jet	**14,217**	**1,880**	**1,302**	**7,445**	**65**	**-**	**27**	**110**	**-**	**129**	**11**	**23**	**99**	**2,876**	**-**	**250**
Rotorcraft Total	**10,511**	**1,319**	**300**	**310**	**1,947**	**585**	**1,801**	**631**	**246**	**220**	**213**	**80**	**330**	**359**	**393**	**1,779**
Piston Total	3,270	842	169	22	1,333	249	262	44	7	13	174	-	57	41	58	-
Turbine Total	7,241	477	131	288	615	336	1,538	587	239	206	39	80	272	318	335	1,779
- One-Engine Turbine	5,380	408	118	111	411	325	1,405	400	199	197	39	25	127	237	329	1,048
- Two-Engine Turbine	1,861	70	14	177	203	10	133	187	41	9	-	54	145	81	6	730
Gliders	**1,747**	**1,401**	**-**	**-**	**218**	**-**	**-**	**-**	**-**	**87**	**8**	**-**	**31**	**-**	**-**	**-**
Lighter-Than-Air	**2,945**	**2,052**	**34**	**6**	**48**	**-**	**5**	**-**	**-**	**54**	**671**	**-**	**11**	**-**	**64**	**-**
Experimental Total	**26,921**	**24,386**	**732**	**108**	**567**	**50**	**154**	**14**	**-**	**113**	**12**	**-**	**692**	**29**	**-**	**-**
Amateur-Built	20,434	18,766	659	76	414	-	117	-	-	5	5	-	335	-	-	-
Exhibition	1,969	1,624	8	11	18	-	-	-	-	43	-	-	235	8	-	-
Exp. Light-Sport	3,743	3,530	13	-	95	-	-	-	-	57	-	-	19	-	-	-
Other Experimental	776	465	52	21	40	38	15	8	-	8	4	-	102	21	-	-
Special Light-Sport	**2,551**	**2,044**	**37**	**-**	**362**	**-**	**20**	**-**	**-**	**7**	**14**	**-**	**63**	**-**	**-**	**-**

Source: FAA Survey

2.3 U.S. General Aviation and On-Demand Part 135 Total Hours Flown by Use and Aircraft Type (2017)

		General Aviation FAR Part 91 Use												On-Demand FAR Part 135 Use		
Aircraft Type	**Total Hours**	**Personal/ Recre-ational**	**Business (w/o crew)**	**Business (with crew)**	**Instruc-tional**	**Aerial Apps.**	**Aerial Obs.**	**Other Aerial App.**	**External Load**	**Other Work**	**Sight-seeing**	**Air Medical**	**Other**	**Air Taxi**	**Air Tours**	**Air Medical**
Total All Aircraft	**25,212,170**	**7,788,926**	**1,906,493**	**2,627,392**	**5,073,805**	**1,080,255**	**1,257,469**	**416,058**	**114,609**	**377,196**	**207,905**	**80,678**	**771,933**	**2,362,653**	**379,154**	**767,644**
% Std. Error	1.0%	0.9%	2.5%	3.3%	3.0%	5.8%	6.1%	14.6%	17.3%	11.0%	12.5%	15.1%	4.8%	4.3%	14.3%	6.8%
Piston Total	**13,583,499**	**5,883,632**	**1,350,062**	**190,126**	**4,208,170**	**315,977**	**520,303**	**45,576**	**-**	**89,037**	**87,160**	**31,737**	**362,535**	**452,624**	**30,870**	**-**
One-Engine Piston	12,047,095	5,452,871	1,105,276	109,478	3,748,808	303,009	474,121	-	-	87,784	82,875	27,577	320,346	273,400	-	-
Two-Engine Piston	1,536,404	430,762	244,786	80,648	459,361	-	46,182	-	-	-	-	4,160	42,189	179,224	-	-
Turboprop Total	**2,624,877**	**199,610**	**195,362**	**358,118**	**61,107**	**610,326**	**71,465**	**89,659**	**-**	**94,390**	**-**	**-**	**88,797**	**742,028**	**5,859**	**93,662**
One-Engine Turboprop	1,448,301	102,053	113,037	87,648	13,984	587,028	26,203	49,143	-	23,391	-	-	37,429	363,341	-	34,090
Two-Engine Turboprop	1,176,576	97,557	82,325	270,470	47,123	23,298	-	40,516	-	70,999	-	-	51,368	378,687	-	-
Business Jet	**4,065,207**	**406,911**	**234,546**	**2,010,691**	**40,021**	**-**	**-**	**111,591**	**-**	**27,087**	**-**	**-**	**102,126**	**1,023,745**	**-**	**94,854**
Rotorcraft Total	**3,320,010**	**81,509**	**40,103**	**56,841**	**617,806**	**142,990**	**651,609**	**168,504**	**110,212**	**151,579**	**82,871**	**29,251**	**152,020**	**136,015**	**336,802**	**561,899**
Piston Total	782,346	50,823	16,665	-	452,329	36,926	72,001	8,546	-	-	73,055	-	5,880	11,176	39,259	-
Turbine Total	2,537,664	30,685	-	50,973	165,476	-	579,608	159,958	107,695	144,500	-	29,032	146,140	124,839	297,543	561,899
- One-Engine Turbine	1,992,383	26,799	19,246	20,930	117,463	105,004	535,374	128,770	79,673	131,132	9,671	18,498	79,194	94,082	294,478	332,069
- Two-Engine Turbine	545,282	3,887	-	30,043	48,014	-	44,234	31,188	28,022	13,368	-	10,534	66,946	30,757	-	229,830
Gliders	**93,158**	**60,956**	**-**	**-**	**23,688**	**-**	**-**	**-**	**-**	**2,040**	**-**	**-**	**-**	**-**	**-**	**-**
Lighter-Than-Air	**75,038**	**39,564**	**577**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**12**	**-**	**-**	**-**	**-**	**-**
Experimental Total	**1,241,086**	**995,819**	**82,923**	**-**	**48,748**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**54,571**	**-**	**-**	**-**
Amateur-Built	950,130	787,377	76,429	-	36,669	-	-	-	-	-	-	-	-	-	-	-
Exhibition	87,541	66,917	-	-	-	-	-	-	-	-	-	-	13,810	-	-	-
Exp. Light-Sport	138,532	122,641	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Experimental	64,884	18,884	4,143	-	-	10,491	-	-	-	-	-	-	7,445	-	-	-
Special Light-Sport	**209,294**	**120,926**	**2,921**	**-**	**71,244**	**-**	**2,357**	**-**	**-**	**-**	**-**	**-**	**6,994**	**-**	**-**	**-**

Source: FAA Survey

2.4 Active U.S. General Aviation and On-Demand Part 135 Aircraft by Type (1996–2017) and Forecast (2018–2027)

		Airplane			Rotorcraft		Balloons, Dirigibles, Gliders	Experimental	Light-Sport Aircraft		
Year	Total Aircraft	Piston	Turboprop	Business Jet	Piston	Turbine			Total	Experimental	Special
1996	**191,129**	153,551	5,716	4,424	2,507	4,063	4,244	16,625	-	-	-
1997	**192,414**	156,056	5,619	5,178	2,259	4,527	4,092	14,680	-	-	-
1998	**204,710**	162,963	6,174	6,066	2,545	4,881	5,580	16,502	-	-	-
1999	**219,464**	171,923	5,679	7,120	2,564	4,884	6,765	20,528	-	-	-
2000	**217,534**	170,513	5,762	7,001	2,680	4,470	6,701	20,407	-	-	-
2001	**211,446**	163,314	6,596	7,787	2,292	4,491	6,545	20,421	-	-	-
2002	**211,244**	161,087	6,841	8,355	2,351	4,297	6,377	21,936	-	-	-
2003	**209,708**	160,938	7,689	7,997	2,123	4,403	6,008	20,550	-	-	-
2004	**219,426**	165,189	8,379	9,298	2,315	5,506	5,939	22,800	-	-	-
2005	**224,352**	167,608	7,942	9,823	3,039	5,689	6,454	23,627	170	-	-
2006	**221,942**	163,743	8,063	10,379	3,264	5,895	6,278	23,047	1,273	-	-
2007	**231,607**	166,907	9,514	10,385	2,769	6,798	5,940	23,228	6,066	-	-
2008	**228,663**	163,013	8,906	11,042	3,498	6,378	5,652	23,364	6,811	-	-
2009	**223,877**	157,123	9,055	11,268	3,499	6,485	5,480	24,419	6,547	5,077	1,470
2010	**223,370**	155,419	9,369	11,484	3,588	6,514	5,684	24,784	6,528	4,878	1,650
2011E	**220,453**	152,597	9,523	11,650	3,411	6,671	5,681	24,275	6,645	n/a	n/a
2012	**209,034**	143,160	10,304	11,793	3,292	6,763	5,006	26,715	-	4,631	2,001
2013	**199,927**	137,655	9,619	11,637	3,137	6,628	4,278	24,918	-	4,157	2,056
2014	**204,408**	139,182	9,777	12,362	3,154	6,812	4,699	26,191	-	4,204	2,231
2015	**210,030**	141,141	9,712	13,440	3,286	7,220	4,941	27,922	-	3,942	2,369
2016	**211,793**	142,638	9,779	13,751	3,344	7,232	4,986	27,585	-	4,464	2,478
2017	**211,757**	142,916	9,949	14,217	3,270	7,241	4,692	26,921	-	3,743	2,551
Forecast											
2018	**213,905**	143,395	9,195	14,390	3,465	7,565	5,050	28,140	-	-	2,705
2019	**214,175**	142,820	9,050	14,740	3,525	7,730	5,055	28,425	-	-	2,830
2020	**214,050**	141,785	8,975	15,105	3,585	7,895	5,040	28,715	-	-	2,950
2021	**213,890**	140,650	8,940	15,475	3,640	8,055	5,045	29,015	-	-	3,070
2022	**213,675**	139,390	8,970	15,845	3,695	8,215	5,045	29,315	-	-	3,200
2023	**213,390**	138,050	9,025	16,220	3,750	8,375	5,045	29,595	-	-	3,330
2024	**213,150**	136,690	9,135	16,605	3,805	8,535	5,040	29,885	-	-	3,455
2025	**212,950**	135,345	9,270	16,980	3,860	8,700	5,045	30,160	-	-	3,590
2026	**212,735**	133,965	9,440	17,355	3,915	8,865	5,050	30,420	-	-	3,725
2027	**212,580**	132,585	9,650	17,730	3,975	9,030	5,060	30,690	-	-	3,860
Average Annual Growth											
2018–27	**0.0%**	**-0.7%**	**-0.3%**	**2.2%**	**2.0%**	**2.2%**	**0.8%**	**1.3%**	**-**	**-**	**4.2%**

Key changes to survey methodology by year:

- 2003: Aircraft operating in commuter operations were excluded.
- 2004: The survey coverage was expanded for turbine airplanes and rotorcraft, accounting for part of the increase in hours.
- 2007: The estimate of Light-Sport Aircraft increased significantly due to mandatory registration.
- 2009: The FAA began publishing data for Special Light-Sport Aircraft separately.
- 2011: Data is estimated, because no data was published by the FAA.
- 2012: The general aviation survey results includes "Experimental Light-Sport" data in the "Experimental" category.

Source: FAA Survey and Forecast

The Federal Aviation Administration's (FAA) annual general aviation survey categorizes the **uses of general aviation aircraft** as follows:

- personal (and recreational) flying;
- business transportation without a paid crew (that is, an individual using an aircraft for business without a paid, professional crew); and
- business transportation with a paid, professional crew (previously called "corporate").

In addition, the following forms of business operations are included in general aviation operations:

- instructional flying (operations under the supervision of a flight instructor including solo flight);
- sight-seeing (commercial sight-seeing operations under FAR Part 91); and
- on-demand FAR Part 135 operations including air taxi (that is, charter), air tours, and airmedical operations.

2.5 U.S. General Aviation and On-Demand Part 135 Estimated Hours Flown (in Thousands) by Type (1980–2017) and Forecast (2018–2027)

		Airplane			Rotorcraft		Balloons, Dirigibles, Gliders	Experimental	Light-Sport Aircraft		
Year	Total Hours	Piston	Turboprop	Business Jet	Piston	Turbine			Total	Experimental	Special
1980	**41,016**	34,747	2,240	1,332	736	1,603	359	-	-	-	-
1981	**40,704**	34,086	2,155	1,387	930	1,754	391	-	-	-	-
1982	**36,457**	29,950	2,168	1,611	579	1,771	379	-	-	-	-
1983	**35,249**	28,911	2,173	1,473	572	1,700	420	-	-	-	-
1984	**36,119**	29,194	2,506	1,566	592	1,903	358	-	-	-	-
1985	**31,456**	25,666	1,921	1,498	521	1,468	382	-	-	-	-
1986	**31,782**	24,805	2,661	1,527	742	1,682	364	-	-	-	-
1987	**30,883**	24,969	2,010	1,411	602	1,506	384	-	-	-	-
1988	**31,114**	24,291	2,195	1,554	533	1,974	568	-	-	-	-
1989	**32,332**	24,907	2,892	1,527	692	1,918	396	-	-	-	-
1990	**32,096**	25,832	2,319	1,396	716	1,493	341	-	-	-	-
1991	**29,862**	23,919	1,628	1,071	549	2,214	483	-	-	-	-
1992	**26,747**	21,417	1,582	1,076	423	1,842	407	-	-	-	-
1993	**24,455**	19,321	1,192	1,212	391	1,308	338	785	-	-	-
1994	**24,092**	18,823	1,142	1,238	369	1,408	388	724	-	-	-
1995	**26,612**	20,251	1,490	1,455	337	1,624	261	1,194	-	-	-
1996	**26,909**	20,091	1,768	1,543	591	1,531	227	1,158	-	-	-
1997	**27,713**	20,744	1,655	1,713	344	1,740	192	1,327	-	-	-
1998	**28,100**	20,402	1,765	2,226	430	1,912	295	1,071	-	-	-
1999	**31,231**	22,529	1,797	2,721	552	2,077	309	1,246	-	-	-
2000	**29,960**	21,493	1,986	2,648	530	1,661	362	1,280	-	-	-
2001	**27,017**	19,194	1,773	2,654	474	1,479	287	1,157	-	-	-
2002	**27,040**	18,891	1,850	2,745	454	1,422	333	1,345	-	-	-
2003	**27,329**	19,013	1,922	2,704	448	1,687	263	1,292	-	-	-
2004	**28,126**	18,142	2,161	3,718	514	2,020	249	1,322	-	-	-
2005	**26,982**	16,434	2,106	3,771	617	2,439	267	1,339	9	-	-
2006	**27,705**	16,525	2,162	4,077	918	2,528	211	1,218	66	-	-
2007	**27,852**	16,257	2,661	3,938	704	2,541	215	1,275	260	-	-
2008	**26,009**	15,074	2,457	3,600	751	2,470	209	1,155	293	-	-
2009	**23,763**	13,634	2,215	3,161	755	2,248	178	1,286	286	171	115
2010	**24,802**	13,979	2,325	3,375	794	2,611	181	1,226	311	173	138
2011E	**24,569**	13,626	2,463	3,407	757	2,654	181	1,203	278	n/a	n/a
2012	**24,403**	13,206	2,733	3,418	731	2,723	180	1,243	-	151	169
2013	**22,876**	12,352	2,587	3,488	636	2,312	135	1,191	-	135	173
2014	**23,271**	11,967	2,613	3,881	818	2,424	159	1,244	-	142	165
2015	**24,142**	12,825	2,538	3,837	798	2,496	162	1,295	-	132	191
2016	**24,833**	13,548	2,707	3,847	780	2,348	193	1,224	-	152	187
2017	**25,212**	13,583	2,625	4,065	782	2,538	168	1,241	-	139	209
Forecast											
2018	**25,679**	13,412	2,642	4,604	834	2,510	196	1,273	-	-	208
2019	**25,807**	13,160	2,615	4,862	857	2,597	196	1,300	-	-	219
2020	**25,864**	12,882	2,597	5,080	878	2,672	196	1,328	-	-	231
2021	**25,928**	12,627	2,594	5,266	898	2,747	196	1,357	-	-	243
2022	**26,018**	12,390	2,602	5,457	917	2,815	196	1,386	-	-	256
2023	**26,120**	12,187	2,621	5,616	933	2,884	196	1,415	-	-	269
2024	**26,267**	12,028	2,652	5,765	948	2,954	196	1,442	-	-	282
2025	**26,444**	11,898	2,692	5,904	962	3,026	196	1,470	-	-	296
2026	**26,638**	11,776	2,741	6,042	977	3,099	196	1,498	-	-	309
2027	**26,862**	11,670	2,799	6,182	993	3,173	196	1,526	-	-	322
Average Annual Growth											
2018–27	**0.6%**	**-1.5%**	**0.6%**	**4.3%**	**2.4%**	**2.3%**	**1.6%**	**2.1%**	**-**	**-**	**4.4%**

Source: FAA Survey and Forecast

Key changes to survey methodology by year:

- 2003: Aircraft operating in commuter operations were excluded.
- 2004: The survey coverage was expanded for turbine airplanes and rotorcraft, accounting for part of the increase in hours.
- 2007: The estimate of Light-Sport Aircraft increased significantly due to mandatory registration.
- 2009: The FAA began publishing data for Special Light-Sport Aircraft separately.
- 2011: Data is estimated, because no data was published by the FAA.
- 2012: The general aviation survey results includes "Experimental Light-Sport" data in the "Experimental" category.

2.6 Active U.S. General Aviation and On-Demand FAR Part 135 Average Hours Flown Per Aircraft by Year (2000–2017)

Year	All Aircraft	Airplane			Rotorcraft		Balloons, Dirigibles, Gliders	Experimental	Light-Sport Aircraft	
		Piston	Turboprop	Business Jet	Piston	Turbine			Total	Special
2000	**142**	130	353	393	198	398	56	64	-	-
2001	**138**	128	290	341	254	347	50	59	-	-
2002	**128**	117	270	329	193	331	53	61	-	-
2003	**130**	118	250	338	211	383	44	63	-	-
2004	**128**	110	258	400	222	367	42	58	-	-
2005	**120**	98	265	384	203	429	41	57	55	-
2006	**125**	101	268	393	281	429	34	53	52	-
2007	**120**	97	280	379	254	374	36	55	43	-
2008	**114**	93	276	326	215	387	37	50	43	-
2009	**106**	87	245	281	216	347	32	53	44	78
2010	**111**	90	248	294	221	401	32	50	48	84
2011E	**111**	89	259	292	222	398	32	50	42	n/a
2012	**117**	92	265	290	222	403	36	47	-	85
2013	**114**	90	269	300	203	349	32	48	-	84
2014	**114**	86	267	314	260	356	34	48	-	74
2015	**115**	91	261	286	243	346	33	46	-	81
2016	**117**	95	277	280	233	325	39	44	-	75
2017	**119**	95	264	286	239	351	36	46	-	82

Data for 2011 was estimated, because no survey data is available from the FAA.

Source: FAA Survey

2.7 U.S. Experimental Aircraft Fleet and Flight Hours (in Thousands) (2000–2017)

Year	Aircraft Fleet						Hours Flown					
	Amateur-Built	Exhibition	Experimental Light-Sport	Other	Total Experimental	% of GA Fleet	Amateur-Built	Exhibition	Experimental Light-Sport	Other	Total Experimental	% of GA Hours
2000	16,739	1,973	-	1,694	**20,406**	**9.4%**	887	113	-	279	**1,279**	**4.3%**
2001	16,736	2,052	-	1,633	**20,421**	**9.7%**	794	102	-	261	**1,157**	**4.3%**
2002	18,168	2,190	-	1,578	**21,936**	**10.4%**	976	127	-	242	**1,345**	**5.0%**
2003	17,028	2,031	-	1,491	**20,550**	**9.8%**	963	103	-	226	**1,292**	**4.7%**
2004	19,165	2,070	-	1,565	**22,800**	**10.4%**	990	116	-	216	**1,322**	**4.7%**
2005	19,817	2,120	-	1,691	**23,628**	**10.5%**	987	113	-	239	**1,339**	**5.0%**
2006	19,316	2,103	-	1,629	**23,048**	**10.4%**	899	103	-	216	**1,218**	**4.4%**
2007	19,538	2,101	-	1,589	**23,228**	**10.0%**	896	102	-	277	**1,274**	**4.6%**
2008	19,767	2,096	-	1,501	**23,364**	**10.2%**	872	92	-	192	**1,155**	**4.4%**
2009	20,794	2,063	5,077	1,562	**29,496**	**13.2%**	983	88	171	215	**1,457**	**6.1%**
2010	21,270	2,029	4,878	1,485	**29,662**	**13.3%**	911	98	173	217	**1,399**	**5.6%**
2011	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**
2012	18,843	1,923	4,631	1,317	**26,715**	**12.8%**	847	88	151	157	**1,243**	**5.1%**
2013	17,503	1,908	4,157	1,350	**24,918**	**12.5%**	785	78	135	193	**1,191**	**5.2%**
2014	18,873	1,893	4,204	1,221	**26,191**	**12.8%**	834	79	142	189	**1,244**	**5.3%**
2015	21,195	1,966	3,942	820	**27,922**	**13.3%**	1,000	76	132	87	**1,295**	**5.4%**
2016	20,490	2,015	4,264	816	**27,585**	**13.0%**	890	89	152	93	**1,224**	**4.9%**
2017	20,434	1,969	3,743	776	**26,921**	**12.7%**	950	88	139	65	**1,241**	**4.9%**

Source: FAA Survey

2.8 Total Fuel Consumed and Average Fuel Consumption Rate by Aircraft Type (2017)

Fuel Type	Fixed-Wing			Rotorcraft		Other Aircraft	Experimental	Special Light-Sport	Total All Aircraft
	Piston	Turboprop	Turbojet	Piston	Turbine				
Jet Fuel									
Avg. Rate (GPH)	35.2	75.9	296.1	18.5	54.7	-	43.6	-	**164.0**
Estimated Fuel Use (Thousand Gallons)	5,948.8	197,221.0	1,203,774.9	153.7	138,831.7	-	2,799.6	-	**1,548,735.9**
% Standard Error	12.1	1.3	1.2	23.0	1.2	-	15.9	-	**1.0**
100 Low-Lead									
Avg. Rate (GPH)	13.0	50.0	-	12.8	-	-	10.8	6.5	**12.9**
Estimated Fuel Use (Thousand Gallons)	171,046.1	1,293.3	-	9,869.0	-	-	9,351.8	784.2	**192,427.5**
% Standard Error	1.7	21.1	-	2.7	-	-	7.4	5.2	**1.5**
Automotive Gasoline									
Avg. Rate (GPH)	7.6	-	-	-	-	3.7	4.9	4.7	**6.1**
Estimated Fuel Use (Thousand Gallons)	2,201.8	-	-	-	-	9.3	1,248.5	404.3	**3,866.8**
% Standard Error	8.4	-	-	-	-	16.3	4.6	3.8	**3.6**
Total Fuel Use									
Avg. Rate (GPH)	13.2	75.6	296.1	12.8	54.7	12.9	11.3	5.8	**69.6**
Estimated Fuel Use (Thousand Gallons)	179,197.0	198,517.0	1,203,778.2	10,023.0	138,851.5	1,604.3	13,645.8	1,194.7	**1,746,811.5**
% Standard Error	1.7	1.3	1.2	2.7	1.3	6.2	5.9	3.7	**2.1**

Some data points are suppressed or contain no reports of a type of aircraft using that fuel
The FAA no longer publishes data for 100 Octane and Other Fuel.

Source: FAA Survey

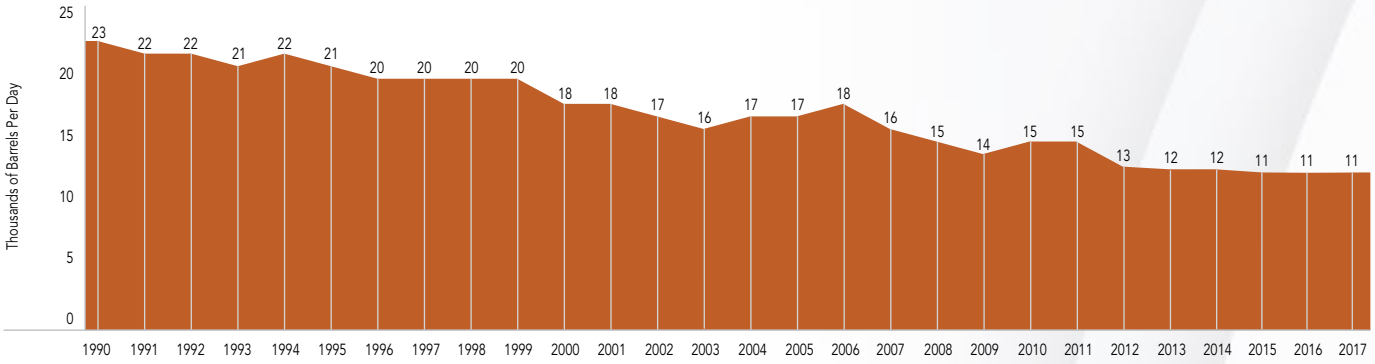
2.9 U.S. General Aviation Fuel Consumption (in MIllions of Gallons) (2000–2017)

Year	Airplane				Rotorcraft		Experimental and Other Aircraft	Light-Sport	Total Fuel Consumed		
	Piston		Turbine		Piston	Turbine			Avgas	Jet Fuel	Total
	Single-Engine	Multi-Engine	Turboprop	Business Jet							
2000	200.8	108.4	176.3	736.7	8.4	59.0	15.2	-	332.8	972.0	**1,304.8**
2001	180.4	76.4	149.1	726.7	7.2	42.6	15.3	-	279.2	918.3	**1,197.6**
2002	177.9	74.2	152.3	745.5	6.8	40.5	17.8	-	276.7	938.3	**1,215.0**
2003	181.8	66.7	154.5	729.0	6.8	48.8	17.1	-	272.4	932.3	**1,204.7**
2004	167.5	80.1	167.0	1,004.9	7.9	59.0	17.5	-	272.9	1,230.9	**1,503.8**
2005	173.1	89.7	196.1	1,181.3	14.6	149.2	17.7	-	295.0	1,526.7	**1,821.7**
2006	164.9	79.9	190.1	1,303.9	16.7	148.6	21.6	0.3	283.4	1,642.6	**1,926.0**
2007	157.6	83.0	205.2	1,148.0	9.3	132.4	22.6	1.2	273.6	1,485.6	**1,759.2**
2008	143.0	69.5	230.4	1,313.2	10.7	162.1	23.3	1.5	248.1	1,705.7	**1,953.8**
2009	132.3	57.1	208.7	1,104.6	10.7	133.6	25.8	1.4	227.4	1,447.0	**1,674.4**
2010	133.1	53.9	187.1	1,122.9	10.7	124.8	21.6	1.5	220.7	1,434.8	**1,655.6**
2011E	129.9	52.9	195.3	1,124.6	10.3	136.4	21.5	1.4	216.0	1,456.3	**1,672.3**
2012	126.6	51.8	190.7	1,232.2	10.7	119.5	21.7	1.5	212.3	1,542.4	**1,754.7**
2013	117.2	53.9	188.6	945.0	8.8	126.0	16.5	0.9	197.3	1,259.6	**1,456.9**
2014	120.0	48.2	198.8	1,135.2	11.0	132.3	29.5	0.8	209.5	1,466.4	**1,676.0**
2015	128.4	40.4	191.4	1,062.9	10.2	128.3	15.4	1.2	195.6	1,382.6	**1,578.2**
2016	128.9	42.9	189.5	1,150.2	10.0	131.2	25.6	1.3	208.6	1,470.9	**1,679.5**
2017	136.6	42.9	203.0	1,211.1	10.1	120.8	19.8	1.1	210.5	1,534.9	**1,745.3**

E = Estimated

Source: FAA Survey and Forecast

FIGURE 2.1 **Refinery and Blender Net Production of Aviation Gasoline (1990–2017)**



Source: U.S. Energy Information Administration

2.10 U.S. Refinery and Blender Net Production of Aviation Gasoline (in Thousand Barrels Per Day) (1990–2016)

Year	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
1990	23	22	22	21	22	21	20	20	20	20
2000	18	18	17	16	17	17	18	16	15	14
2010	15	15	13	12	12	11	11	11	-	-

Source: U.S. Energy Information Administration

2.11 Average Age of Registered U.S. General Aviation Fleet (2010–2017)

Aircraft Type	Engine Type	Average Age in 2010 in Years	Average Age in 2011 in Years	Average Age in 2012 in Years	Average Age in 2013 in Years	Average Age in 2014 in Years	Average Age in 2015 in Years	Average Age in 2016 in Years	Average Age in 2017 in Years
Single-Engine	Piston	46.3	n/a	43.4	40.7	44.8	45.4	45.7	46.2
	Turboprop	15.2	n/a	14.9	12.5	13.5	13.2	13.2	14.2
	Jet	44.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Helicopter – Piston	-	n/a	20.8	17.1	21.4	21.5	21.0	21.3
	Helicopter – Turbine	-	n/a	22.9	22.3	22.1	22.4	22.4	22.9
Multi-Engine	Piston	39.0	n/a	40.2	38.5	41.9	42.5	43.2	44.0
	Turboprop	27.0	n/a	26.1	25.2	27.6	27.2	28.4	29.0
	Jet	16.2	n/a	15.3	14.7	15.8	15.8	15.3	16.0
	Helicopter – Turbine	-	-	17.5	14.7	17.6	18.1	18.9	17.9
All Aircraft		**37.3**	**n/a**	**35.1**	**33.2**	**36.7**	**36.9**	**37.2**	**37.5**

Source: GAMA

2.12 U.S. General Aviation Operations (in Thousands) at FAA and Contract Towers (1992–2018)

Year	General Aviation Operations at Towers								Grand Total
	FAA Control Towers				Contract Towers				
	Total	Itinerant & Overflight	Local	Number of Towers	Total	Itinerant & Overflight	Local	Number of Towers	
1992	**36,945**	21,281	15,664	n/a	**1,409**	767	642	n/a	**38,355**
1993	**35,228**	20,377	14,851	n/a	**1,373**	760	613	n/a	**36,601**
1994	**34,092**	20,208	14,484	n/a	**1,561**	855	706	n/a	**36,254**
1995	**32,265**	18,886	13,379	n/a	**3,661**	1,974	1,687	n/a	**35,927**
1996	**29,250**	17,575	11,675	n/a	**6,049**	3,249	2,801	n/a	**35,298**
1997	**28,232**	17,097	11,135	n/a	**8,601**	4,572	4,029	n/a	**36,833**
1998	**28,522**	17,157	11,365	n/a	**10,118**	5,240	4,877	n/a	**38,046**
1999	**29,110**	17,422	11,688	n/a	**10,890**	5,597	5,292	n/a	**40,000**
2000	**27,002**	16,286	10,717	n/a	**12,876**	6,558	6,318	n/a	**39,879**
2001	**24,784**	14,949	9,835	266	**12,843**	6,484	6,359	206	**37,627**
2002	**24,092**	14,553	9,539	n/a	**13,562**	6,898	6,634	n/a	**37,653**
2003	**22,598**	13,577	9,021	n/a	**12,926**	6,654	6,272	n/a	**35,524**
2004	**21,762**	13,190	8,572	n/a	**13,205**	6,817	6,388	n/a	**34,968**
2005	**20,705**	12,430	8,275	n/a	**13,456**	6,885	6,571	n/a	**34,161**
2006	**19,728**	11,897	7,830	n/a	**13,392**	6,844	6,549	n/a	**33,120**
2007	**19,367**	11,616	7,751	n/a	**13,768**	6,961	6,807	n/a	**33,135**
2008	**18,336**	10,828	7,509	264	**12,953**	6,540	6,413	239	**31,289**
2009	**17,429**	10,770	6,659	264	**12,156**	6,585	5,571	244	**29,585**
2010	**16,741**	10,430	6,310	264	**11,837**	6,517	5,319	244	**28,577**
2011	**16,324**	10,206	6,118	264	**11,737**	6,374	5,363	248	**28,061**
2012	**16,265**	10,111	6,154	264	**11,878**	6,479	5,399	250	**28,143**
2013	**16,027**	9,857	6,170	264	**11,998**	6,438	5,560	252	**28,025**
2014	**15,791**	9,707	6,084	264	**11,951**	6,356	5,595	252	**27,742**
2015	**15,544**	9,449	6,096	264	**12,024**	6,441	5,584	252	**27,569**
2016	**15,554**	9,380	6,174	264	**11,990**	6,535	5,455	252	**27,544**
2017	**15,564**	9,280	6,284	264	**12,112**	6,560	5,552	254	**27,675**
2018E	**15,670**	9,187	6,483	264	**12,748**	6,733	6,015	256	**28,419**

E = Estimated
Location operations at FAA Control Towers captures all civil local operations.

Facilities includes Control Towers, TRACONs, CERAPs and RAPCONs.
Traffic Count for GA Operation Data are provided by OPSNET.

Source: FAA Air Traffic Activity

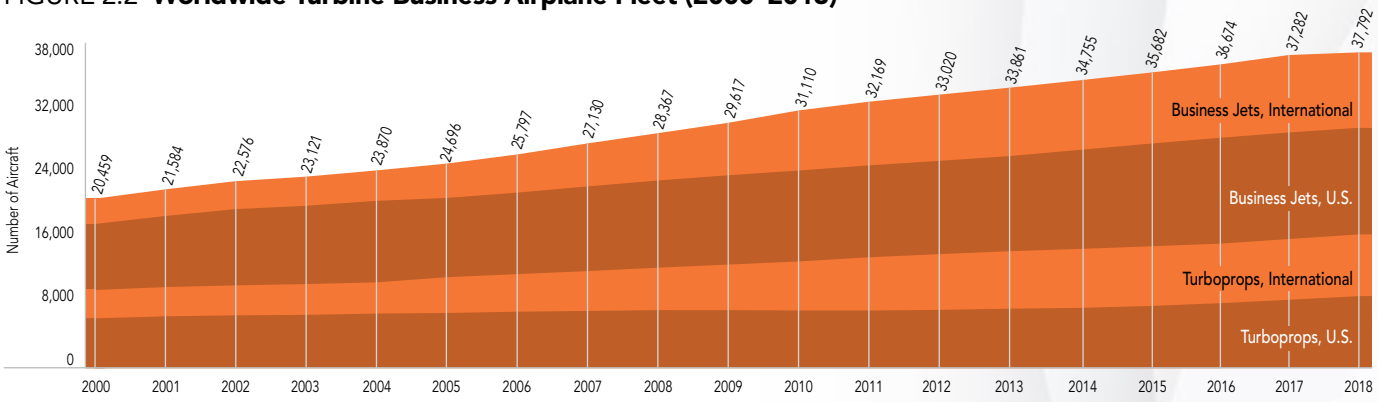
2.13 **U.S. General Aviation Operations (in Thousands) at FAA and Contract Facilities (2004–2018)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017E	2018F
IFR Aircraft Handled at En Route Centers	8,350.4	8,367.7	8,197.0	8,294.3	7,670.7	6,331.6	6,550.3	6,557.3	6,472.1	6,439.1	6,741.0	7,007.0	7,300.6	7,428.0	7,513.0
TRACON Operations	18,006.8	17,388.9	17,005.3	16,747.4	15,763.0	14,151.1	13,863.6	13,503.1	13,423.6	13,047.7	13,017.6	13,075.7	13,089.7	13,276.0	13,317.0
Operations at Airports with FAA and Contract Traffic Control															
Itinerant	-	-	18,707.1	18,575.2	17,492.7	15,571.1	14,863.9	14,527.9	14,521.7	14,177.4	13,979.0	13,887.0	13,904.0	13,838.0	13,868.0
Local	-	-	14,365.4	14,556.8	14,081.2	12,448.0	11,716.3	11,437.0	11,608.3	11,688.0	11,675.0	11,691.0	11,632.0	11,732.0	11,939.0

E = Estimated. F = Forecast.
Traffic Count for GA Operation Data provided by ATADS.

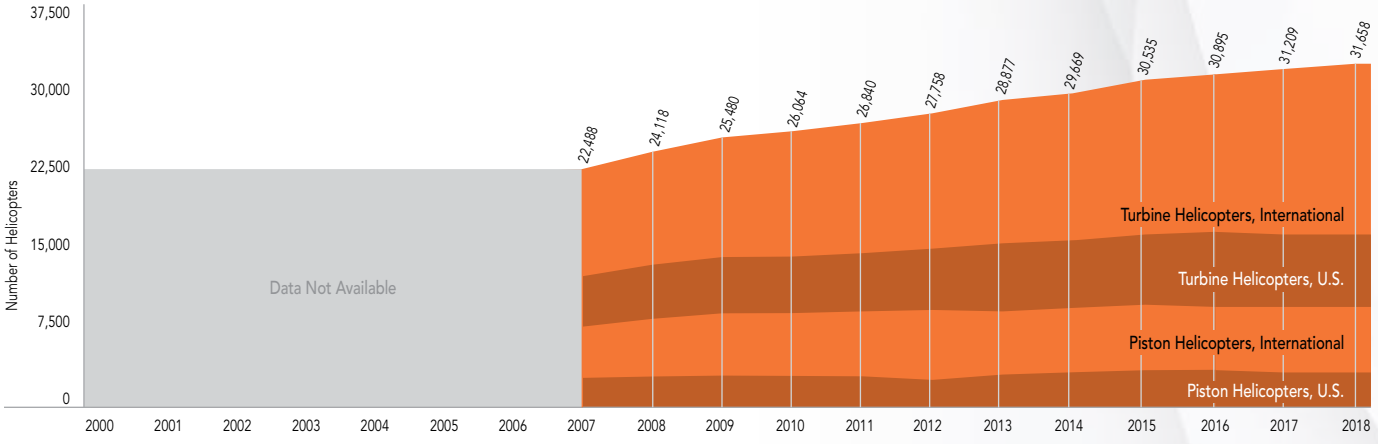
Source: FAA Air Traffic Activity

FIGURE 2.2 **Worldwide Turbine Business Airplane Fleet (2000–2018)**



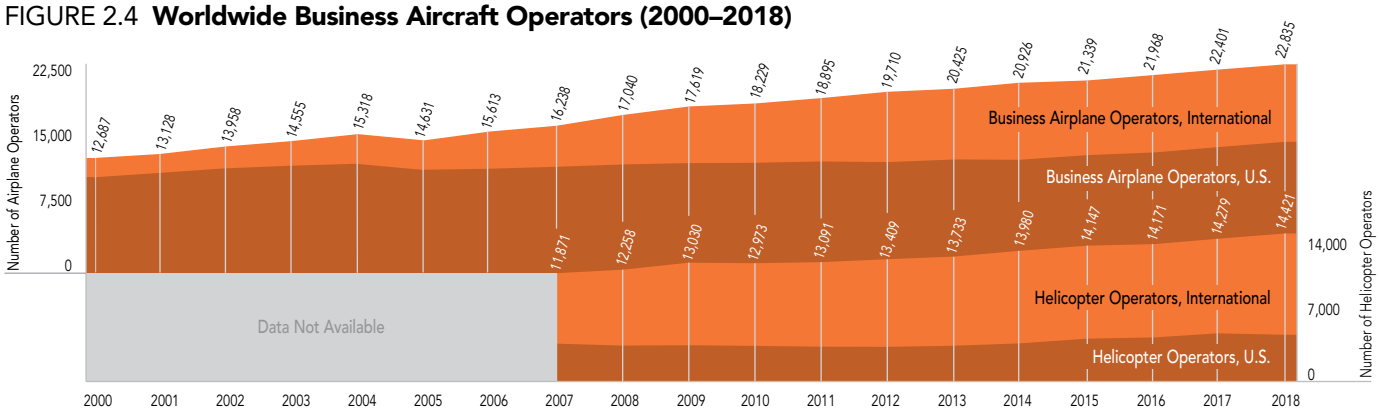
Source: JETNET LLC; www.JETNET.com

FIGURE 2.3 **Worldwide Turbine and Piston Helicopter Fleet (2007–2018)**



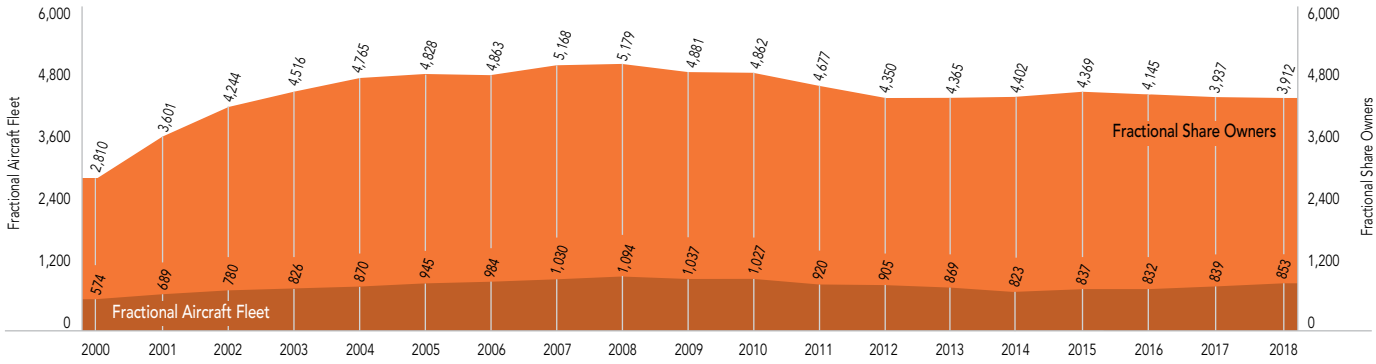
Source: JETNET LLC; www.JETNET.com

FIGURE 2.4 **Worldwide Business Aircraft Operators (2000–2018)**



Source: JETNET LLC; www.JETNET.com

FIGURE 2.5 **Fractional Aircraft and Share Owners (2000–2018)**



The fractional owner and fleet information for 2007 and later also includes helicopters.

Source: JETNET LLC; www.JETNET.com

CHAPTER **THREE**

EUROPEAN FLEET DATA

3.1 Austria—Number of Aircraft by Type (2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2018	406	455	66	1	85	128	88	297	687	7	0	**2,220**

Source: Austrocontrol, www.austrocontrol.at (Österreichisches Luftfahrzeugregister) and GAMA analysis

3.2 Belgium—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	747	351	43	10	41	128	29	206	402	0	1,472	**3,429**
2018	769	342	38	7	32	113	32	208	249	0	2,233	**4,023**

Source: Belgian Civil Aviation Authority (SPF Mobilité et Transport), www.mobilit.belgium.be

3.3 Bosnia-Herzegovina—Number of General Aviation Aircraft by Type (2016–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2016	5	31	4	0	2	4	0	0	32	2	0	**80**
2107	6	31	4	0	2	4	0	0	34	3	0	**84**
2018	5	29	3	1	2	7	0	1	33	4	0	**85**

Source: Bosnia and Herzegovina Directorate of Civil Aviation (http://www.bhdca.gov.ba) and GAMA analysis

3.4 Bulgaria—Number of General Aviation Aircraft by Type (2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	18	138	9	11	13	16	10	4	4	3	n/a	**226**

Source: Bulgarian Civil Aviation Administration (Гражданска въздухоплавателна администрация), http://www.caa.bg/ and GAMA analysis

3.5 Croatia—Number of Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	122	85	19	6	12	11	6	10	58	2	n/a	**331**
2018	122	81	19	6	12	10	6	11	59	3	n/a	**329**

Source: Croatia Civil Aviation Authority http://www.ccaa.hr/ and GAMA analysis

3.6 Cyprus—Number of General Aviation Aircraft by Type (2014–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	21	47	9	0	1	9	2	0	1	0	0	**90**
2015	23	53	12	0	1	11	2	0	1	0	1	**104**
2016	21	53	13	0	1	11	2	0	1	0	1	**103**
2017	27	55	13	0	1	11	3	0	1	0	1	**112**
2018	29	49	12	0	1	11	4	0	1	0	1	**108**

Source: Department of Civil Aviation Cyprus (Κυπριακή Δημοκρατία, Υπουργείο Συγκοινωνιών και Εργών), www.mcw.gov.cy

3.7 Czech Republic—Number of Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes				Rotorcraft		Motor Gliders	Gliders	Balloons	Airships	Microlights	UAS	Total Aircraft
	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine							
	Single-Engine	Multi-Engine	Turboprops	Business Jets									
2017	908	129	28	50	146	25	135	1,042	256	0	n/a	678	**3,397**
2018	930	122	26	59	156	18	145	1,078	271	0	n/a	765	**3,570**

Source: Czech Civil Aviation Authority (Urad Pro Civilni Letectvi), http://www.caa.cz/

3.8 Denmark—Number of Aircraft by Type (2012–2017)

Year	Fixed-wing Aeroplanes				Rotorcraft	Balloons	Motor Gliders	Gliders	Total Aircraft
	2,730 kg and Below	2,730 kg–5,700 kg	5,700 kg–50,000 kg	50,000 kg–100,000 kg					
2012	684	43	127	48	125	66	136	330	**1,559**
2013	673	40	121	58	129	66	134	324	**1,545**
2014	670	36	135	61	124	70	136	314	**1,546**
2015	658	38	135	56	118	71	138	305	**1,519**
2016	646	39	129	53	114	73	135	304	**1,493**
2017	647	39	125	46	111	76	133	298	**1,475**

The Danish aircraft registry does not distinguish between aeroplanes used in scheduled commercial and general aviation operations.

Source: Danish Transport Authority (Trafikstyrelsen), www.trafikstyrelsen.dk

3.9 Estonia—Number of Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	n/a	65	3	21	23	10	3	8	42	2	n/a	**178**
2018	n/a	57	5	21	10	11	0	10	47	3	n/a	**164**

Source: Republic of Estonia Civil Aviation Administration (Lennuamet), www.ecaa.ee

3.10 Finland—Number of Aircraft by Type (2014–2016)

Year	Fixed-wing Aeroplanes		Rotorcraft and Gyrocopters	Gliders and Motor Gliders	Balloons and Airships	Microlights	Total Aircraft
	Aeroplanes	Airliners					
2014	552	109	111	390	54	318	**1,534**
2015	567	110	105	366	52	318	**1,518**
2016	578	84	99	359	52	324	**1,496**

TRAFI uses the term airliner. Airliners are defined as aeroplanes with a maximum take-off weight (MTOW) of more than 8,618kg.

Source: Finnish Transport Safety Agency (Liikenteen turvallisuusvirasto), www.trafi.fi

3.11 France—Number of General Aviation Aircraft by Type (2016–2018)

Year	Fixed-wing Aeroplanes							Rotorcraft			Gliders	Balloons and Airships	Gyrocop-ters	Amphib-ian	Total Aircraft
	Ultralights including Powered Parachutes	450 kg–5,700 kg			Above 5,700 kg			Below 450 kg	Piston Engine	Turbine					
		Piston Engine	Turbo-props	Business Jets	Piston Engine	Turbo-props	Business Jets								
2016	14,142	5,066	84	36	23	16	44	122	224	174	1,449	796	779	3	**22,958**
2017	14,462	5,104	104	40	13	17	64	123	252	188	1,579	793	789	3	**23,531**
2018	14,593	5,520	117	44	14	9	46	122	244	158	1,675	3	838	n/a	**23,383**

Source: Direction de l'Aviation Civile, https://www.ecologique-solidaire.gouv.fr/politiques/aviation-civile

3.12 Georgia—Number of General Aviation Aircraft by Type (2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	9	7	2	2	1	3	9	6	0	0	0	**39**

Source: Georgia Civil Aviation Agency (http://www.gcaa.ge) and GAMA analysis

3.13 Germany—Number of Aircraft by Type (2010–2017)

Year	Fixed-wing Aeroplanes							Rotorcraft	Motor Gliders	Airships	Balloons	Gliders	Total Aircraft
	Single-Engine		Multi-Engine		5,701 kg–14,000 kg	14,001 kg–20,000 kg	Above 20,000 kg						
	2,000 kg and Below	2,000 kg–5,700 kg	2,000 kg and Below	2,000 kg–5,700 kg									
2010	6,801	153	242	444	228	40	772	811	3,081	4	1,260	7,867	**21,703**
2011	6,744	155	243	428	236	38	770	773	3,122	3	1,257	7,834	**21,603**
2012	6,757	150	239	414	217	30	767	774	3,185	5	1,215	7,793	**21,546**
2013	6,733	155	240	403	199	34	758	769	3,263	3	1,201	7,704	**21,462**
2014	6,689	149	228	393	207	33	751	745	3,357	3	1,183	7,657	**21,395**
2015	6,596	147	229	371	191	34	751	757	3,403	3	1,164	7,567	**21,213**
2016	6,553	160	221	381	211	35	777	733	3,456	3	1,124	7,450	**21,104**
2017	6,527	174	219	291	219	37	753	729	3,528	3	1,102	7,383	**20,965**

The data, especially Fixed-wing Aeroplanes above 20,000 kg, includes commercial airliners.

Source: German Civil Aviation Authority (Luftfahrt-Bundesamtes / Statistiken), www.lba.de

3.14 Guernsey—Number of General Aviation Aircraft by Type (2013–2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2013	0	4	0	0	0	0	0	0	0	0	0	**4**
2014	0	17	1	0	6	0	1	0	0	0	0	**25**
2015	0	23	4	0	18	1	3	0	0	0	0	**49**
2016	0	25	16	3	39	1	4	0	0	0	0	**88**
2017	0	30	23	14	47	7	8	0	0	0	0	**129**

The turboprop and business jet data include aircraft not operated by an AOC holder, including lessor-owned aircraft in between leases.

Source: Guernsey Aircraft Registry 2-REG, www.2-REG.com

3.15 Iceland—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	187	132	25	13	0	9	4	0	28	2	27	**427**
2018	180	132	26	12	0	9	4	0	28	2	218	**627**

Source: Iceland Transport Authority (Samgongustofa), http://www.icetra.is/aviation/aip-iceland/

3.16 Ireland—Number of General Aviation Aircraft by Type (2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	224	178	15	0	10	21	17	10	23	15	n/a	**513**

Source: Irish Aviation Authority, www.iaa.ie and GAMA analysis

3.17 Isle of Man—Number of Aircraft by Type (2014–2017)

Year	Fixed-wing Aeroplanes			Rotorcraft		Total Aircraft
	5,700 kg and Below	5,700 kg–15,000 kg	Above 15,000 kg	Single-Engine	Multi-Engine	
2014	76	65	230	2	28	**401**
2015	71	68	244	2	26	**411**
2016	67	61	280	0	43	**451**
2017	67	51	263	2	48	**431**

Source: Isle of Man Aircraft Registry, www.gov.im

3.18 Italy—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	13,181	668	99	21	56	335	168	76	157	0	6,334	**21,095**
2018	12,226	686	97	25	56	343	169	85	159	0	10,374	**24,220**

Source: Ente Nazionale per l'Aviazione Civile (ENAC), www.enac.gov.it

3.19 Latvia—Number of General Aviation Aircraft by Type (2014–2017)

Year	Fixed-wing Aeroplanes								Rotorcraft			Motor Gliders	Gliders	Gyrocop-ters	Total Aircraft
	5,700 kg and Below						Above 5,700 kg		Piston Engine	Turbine					
	Piston Engine		Turboprops		Business Jets		Turbo-props	Turbojets		Single-Engine	Multi-Engine				
	Single-Engine	Multi-Engine	Single-Engine	Multi-Engine	Single-Engine	Multi-Engine									
2014	122	6	2	2	8	2	1	3	10	5	12	25	21	2	**221**
2015	130	6	10	1	2	2	0	1	9	4	12	10	21	2	**210**
2016	126	6	7	1	2	3	1	3	6	5	10	10	22	2	**204**
2017	111	4	2	3	7	1	0	3	8	6	8	11	23	3	**190**

Source: Latvian CAA (Civilās Aviācijas Aģentūra), www.caa.lv

3.20 Lithuania—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	273	121	1	9	40	10	4	119	146	3	n/a	**726**
2018	307	112	1	9	35	10	4	124	151	2	n/a	**755**

Source: Lithuanian CAA (Civilinės Aviacijos Administracija), www.caa.lt

3.21 Luxembourg—Number of General Aviation Aircraft by Type (2014–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	33	183				11		54	11	0	0	**292**
2015	26	191				54		12	10	0	0	**293**
2016	24	89		96		2	10	56	7	0	0	**284**
2017	32	69	3	11	91	2	11	47	7	0	0	**273**
2018	32	70	4	11	93	2	11	44	7	0	0	**274**

Source: Luxembourg CAA (Direction De L'Aviation Civile), www.dac.public.lu

3.22 Macedonia—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	23	1	3	1	0	0	1	14	0	0	0	**43**
2018	34	10	3	3	1	0	0	1	5	0	84	**141**

Source: Republic of Macedonia Civil Aviation Agency, http://www.caa.gov.mk and GAMA analysis

3.23 Malta—Number of General Aviation Aircraft by Type (2011–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2011	30	17	9	10	34	2	0	0	0	0	0	**102**
2012	33	23	15	8	44	4	0	0	0	0	0	**127**
2013	33	24	18	9	66	4	0	0	0	0	0	**154**
2014	32	18	14	9	96	4	0	0	0	0	0	**173**
2015	32	18	11	8	139	4	0	0	0	0	0	**212**
2016	32	17	11	6	173	4	0	0	0	0	0	**243**
2017	32	17	13	6	194	3	0	0	0	0	0	**265**
2018	32	20	12	7	221	2	4	0	0	0	0	**298**

Source: Transport Malta, www.transport.gov.mt & GAMA analysis

3.24 Montenegro—Number of General Aviation Aircraft by Type (2014–2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	n/a	19		2		7		1	2	n/a	n/a	**31**
2015	n/a	9		4		4		0	1	n/a	n/a	**18**
2016	n/a	10		5		5		1	2	n/a	n/a	**23**
2017	n/a	16	0	0	2	3	3	2	2	n/a	n/a	**28**

Source: Civil Aviation Agency of Montenegro (Agencija za civilno vazduhoplovstvo) Data, www.caa.me and GAMA analysis

3.25 Netherlands—Number of Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Turbofan							
2017	202	661	49	15	249	41	36	415	628	10	1,205	**3,511**
2018	788	379	47	18	257	38	35	427	621	10	1,832	**4,470**

Turbofan data includes both business jets and aeroplanes used in airline operations.

Source: Dutch Environment and Transport Inspectorate (Inspectie Leefomgeving en Transport), www.ilent.nl

3.26 Norway—Number of Aircraft by Type (2016–2018)

Year	Fixed-wing Aeroplanes			Rotorcraft		Gliders and Motor Gliders	Balloons and Airships	Total Aircraft
	5,700 kg and Below	Above 5,700 kg	Above 60,000 kg	5,700 kg and Below	Above 5,700 kg			
2016	454	208	131	192	75	151	20	**1,231**
2017	n/a	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**
2018	586	72	138	200	78	148	19	**1,241**

Source: Norway Civil Aviation Authority, http://www.luftfartstilsynet.no/

3.27 Poland—Number of General Aviation Aircraft by Type (2014–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	469	753	84	9	12	97	83	178	837	21	0	**2,543**
2015	501	759	79	15	13	104	90	196	885	26	0	**2,668**
2016	502	778	82	13	15	103	99	203	907	32	32	**2,766**
2017	532	785	75	10	19	125	86	212	948	38	32	**2,862**
2018	541	863	62	11	19	131	91	225	980	52	37	**3,012**

Annex II aircraft are also included in the total count of single-engine aeroplanes below 5,700 kg.

Source: Polish Civil Aviation Authority (Urzad Lotnictwa Cywilnego), www.ulc.gov.pl

3.28 Portugal—Number of General Aviation Aircraft by Type (2017)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	309	420	47	7	133	22	61	50	20	1	0	**1,227**

Source: Portuguese Civil Aviation Authority (Instituto Nacional de Aviação Civil), www.inac.pt and GAMA analysis

3.29 Romania—Number of Aircraft by Type (2015)

Year	Fixed-wing Aeroplanes		Rotorcraft		Total Aircraft
	5,700 kg and Below	Above 5,700 kg	Single-Engine	Multi-Engine	
2015	97	5	17	25	**144**

Source: Romania Civil Aeronautical Authory (Autoritatea Aeronautica Civila Romana), www.caa.ro

3.30 Serbia—Number of General Aviation Aircraft by Type (2014–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	53	188		10		37		7	83	2	0	**380**
2015	56	193		11		38		6	87	3	0	**394**
2016	55	207		21		38		6	93	3	130	**553**
2017	146	127	16	8	36	35	4	6	54	0	211	**643**
2018	140	140	22	1	15	29	1	6	53	0	310	**717**

Source: Civil Aviation Directorate of the Republic of Serbia (Директорат цивилног ваздухопловства Републике Србије), www.cad.gov.rs

3.31 Slovakia—Number of General Aviation Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	50	258	27	5	5	28	27	42	266	0	0	**265**
2018	n/a	303	32	6	12	39	25	51	259	0	0	**353**

Source: Transport Authority Slovakia (Dopravný úrad), www.nsat.sk and GAMA analysis

3.32 Slovenia—Number of Aircraft by Type (2017–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2017	145	271	8	1	10	17	5	31	146	1	n/a	**635**
2018	86	207	7	6	6	16	6	27	145	2	n/a	**500**

Source: Civil Aviation Agency, Slovenia (agencija za civilno letalstvo Republike Slovenije), www.caa.si

3.33 Spain—Number of Aircraft by Type (2014–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2014	3,122	1,581	356	63	187	313	238	561	252	n/a	n/a	**6,673**
2015	3,168	1,557	350	66	172	306	257	572	290	n/a	n/a	**6,738**
2016	3,216	1,564	354	219		334	252	581	252	n/a	n/a	**6,772**
2017	3,239	1,542	349	207		329	264	596	247	n/a	n/a	**6,828**
2018	3,262	1,488	341	202		324	271	606	247	n/a	n/a	**6,786**

Source: Spanish State Aviation Safety Agency (Agencia Estatal de Seguridad Aérea), www.seguridadaerea.gob.es

3.34 Sweden—Number of Aircraft by Weight and Type (2008–2015)

Year	Motorpowered Aircraft							Gliders, Motor Gliders, and Balloons	Total Aircraft
	2,000 kg and Below	2,001 kg–5,700 kg	5,701 kg–10,000 kg	10,001 kg–15,000 kg	15,001 kg–25,000 kg	25,001 kg–100,000 kg	Above 100,000 kg		
2008	2,096	187	46	30	64	54	5	436	**2,918**
2009	2,115	191	44	27	67	59	5	420	**2,928**
2010	2,251	189	40	27	72	47	5	274	**2,905**
2011	2,092	198	37	21	75	45	5	255	**2,728**
2012	2,093	191	34	22	72	44	3	263	**2,722**
2013	2,094	186	37	23	84	44	2	321	**2,791**
2014	2,090	186	31	24	82	45	2	340	**2,800**
	Aeroplanes	**Rotorcraft**	**Gliders**	**Motor Gliders**	**Balloons**	**Ultralights**	**Gyrocopters**		
2015	1,650	261	330	155	107	475	68	n/a	**3,046**

The number of gliders, powered gliders, and balloons is based on the number of valid airworthiness certificates on December 31 of the year.
Sweden changed how aircraft registry data is published in 2015.

Source: Swedish Transport Ministry (Transportstyrelsen), www.transportstyrelsen.se

3.35 Switzerland—Number of General Aviation Aircraft by Type (2016–2018)

Year	Fixed-wing Aeroplanes					Rotorcraft		Balloons and Airships	Gliders and Motor Gliders	Gyrocopters	UAS	Total Aircraft
	Annex II (including Ultralights)	450 kg–5,700 kg		Above 5,700 kg		Single-Engine	Multi-Engine					
		Single-Engine	Multi-Engine	Turboprops	Business Jets							
2016	540	797	112	11	58	227	59	318	849	3	n/a	**2,974**
2017	542	824	109	11	65	247	62	336	862	8	n/a	**3,066**
2018	692	844	124	12	80	244	66	326	756	n/a	n/a	**3,144**

Souce: Swiss Federal Office of Civil Aviation (Bundesamt für Zivilluftfahrt), www.bazl.admin.ch

3.36 Ukraine—Number of Aircraft by Type (2015)

Year	Fixed-wing Aeroplanes	Rotorcraft	Ultralights	Balloons	Gliders	Gyrocopters	Total Aircraft
2015	462	193	55	19	52	7	**788**

Source: State Aviation Administration (Державна авіаційна служба України), www.avia.gov.ua/

3.37 United Kingdom—Number of Aircraft by Type (2012–2018)

Year	Fixed-wing Aeroplanes								Micro-lights	Rotor-craft	Gliders	Hang Gliders	Balloons and Min. Lift	Airships	Gyro-copters	Total Aircraft
	Am-phibian	750 kg and Below	751 kg–5,700 kg	5,701 kg–15,000 kg	15,001 kg–50,000 kg	Above 50,000 kg	SLMG	Sea-planes								
2012	21	3,245	5,564	219	293	755	296	2	4,045	1,260	2,248	9	1,639	21	322	**19,939**
2013	21	3,269	5,505	212	289	761	302	2	4,029	1,232	2,247	9	1,625	20	327	**19,850**
2014	20	3,300	5,484	200	272	791	314	3	3,998	1,231	2,267	9	1,607	21	329	**19,846**
2015	21	3,325	5,493	190	260	806	321	3	4,015	1,258	2,260	9	1,598	23	342	**19,924**
2016	22	3,346	5,503	179	274	833	328	3	4,028	1,290	2,265	9	1,591	20	336	**20,027**
2017	21	3,395	5,497	174	261	844	322	3	3,993	1,283	2,257	9	1,608	20	341	**20,028**
2018	21	3,385	5,484	176	242	770	320	3	3,918	1,256	2,265	9	1,592	17	352	**19,810**

SLMG = Self-Launching Motor Glider
Does not differentiate if aeroplane is used for GA or commercial operations.
Data from December 31 of specified year (published first day of the following year).

Source: UK Civil Aviation Authority, Civil Registry Statistics, G-INFO Database, www.caa.co.uk

CHAPTER **FOUR**

ASIA-PACIFIC FLEET DATA

4.1 Australia—Number of General Aviation and Regional Aircraft by Category (1995–2018)

Year	Amateur-Built Aircraft	Fixed-wing Aeroplanes				Rotorcraft	Balloons & Airships	Remote Piloted Aircraft	Total Aircraft
		Gliders	Motor Gliders	Single-Engine	Multi-Engine				
1995	-	-	-	6,787	1,779	739	243	-	**9,548**
1996	-	-	-	6,861	1,799	739	266	-	**9,665**
1997	-	-	-	6,994	1,803	768	284	-	**9,849**
1998	-	-	-	7,137	1,783	791	295	-	**10,006**
1999	-	-	-	7,247	1,743	868	310	-	**10,168**
2000	-	-	-	7,302	1,755	743	325	-	**10,125**
2001	673	-	-	6,680	1,736	979	334	-	**10,402**
2002	707	-	-	6,668	1,706	1,038	336	-	**10,455**
2003	789	-	-	6,727	1,696	1,121	338	-	**10,671**
2004	848	-	-	6,794	1,718	1,194	350	-	**10,904**
2005	896	-	-	6,908	1,733	1,292	351	-	**11,180**
2006	910	-	-	6,838	1,730	1,320	319	-	**11,117**
2007	968	-	-	6,955	1,804	1,481	333	-	**11,541**
2008	1,037	-	-	7,180	1,871	1,619	338	-	**12,045**
2009	1,071	-	-	7,230	1,885	1,703	340	-	**12,229**
2010	1,111	-	-	7,375	1,932	1,800	346	-	**12,564**
2011	1,176	-	-	7,410	1,930	1,855	354	-	**12,725**
2012	1,187	-	-	7,256	1,815	1,817	355	-	**12,430**
2013	1,278	-	-	7,798	2,053	2,077	379	-	**13,585**
2014	1,487	950	246	7,818	2,364	2,038	383	-	**15,286**
2015	1,516	953	250	7,789	2,361	2,038	382	-	**15,289**
2016	1,547	949	271	7,802	2,335	2,072	382	-	**15,358**
2017	1,570	944	280	7,805	2,320	2,107	397	1	**15,424**
2018	1,591	949	279	7,813	2,346	2,178	408	1	**15,565**

Amateur-Built Aircraft include powered-aeroplanes, gliders, balloons, and rotorcraft.

Source: Dept. of Transportation and Regional Services, Bureau of Transport and Regional Economics, www.bitre.gov.au and Civil Aviation Safety Authority, www.casa.gov.au

4.2 China—Number of Aircraft by Type (2012–2013)

Year	Airplanes				Rotorcraft	Balloons	Airships	Other	Total Aircraft
	Piston-Engine		Turbine-Engine						
	Single	Twin	Turboprop	Turbojet					
2012	705	102	129	2,134	298	21	6	27	**3,422**
2013	794	96	151	2,371	385	24	6	30	**3,857**

The turbojet category includes air carrier data. The 2013 data included 202 business jets.

Source: Civil Aviation Adminstration of China (中国民用航空局), www.caac.gov.cn

4.3 Japan—Number of Aircraft by Type (2000–2017)

Year	Airplanes					Rotorcraft		Gliders	Airships	Total Aircraft
	Piston		Turboprop		Turbojet or Turbofan					
	Single-Engine	Multi-Engine	Single-Engine	Multi-Engine		Piston-Engine	Turbine-Engine			
2000	584	63	13	110	450	193	764	624	1	**2,802**
2001	577	62	16	113	455	183	747	644	1	**2,798**
2002	575	59	17	112	464	166	703	648	1	**2,745**
2003	570	53	18	112	474	160	661	649	1	**2,698**
2004	558	52	18	112	474	154	647	658	2	**2,675**
2005	543	51	18	110	485	160	630	659	2	**2,658**
2006	540	46	21	112	500	160	618	665	3	**2,665**
2007	542	45	23	111	509	169	604	666	3	**2,672**
2008	539	43	23	111	512	171	597	665	3	**2,664**
2009	545	46	23	109	523	177	600	670	2	**2,695**
2010	546	54	24	112	511	181	600	667	1	**2,696**
2011	511	54	23	101	498	184	593	668	1	**2,633**
2012	505	52	26	95	529	185	606	667	1	**2,666**
2013	504	53	28	100	563	180	623	663	1	**2,715**
2014	490	51	28	101	582	178	631	661	1	**2,723**
2015	489	55	30	102	602	173	628	654	1	**2,734**
2016	483	57	39	97	629	171	640	650	1	**2,767**
2017	490	56	47	101	641	169	643	648	1	**2,796**

Source: Civil Aviation Bureau (航空局), www.mlit.go.jp

4.4 New Zealand—Number of Aircraft by Type (2006–2018)

Year	Airplanes by Mass				Sport	Rotorcraft	Total Aircraft
	Agricultural	Small	Medium	Large			
2006	127	1,420	78	117	1,638	653	**4,033**
2007	124	1,449	82	116	1,723	698	**4,192**
2008	120	1,492	81	121	1,793	747	**4,354**
2009	110	1,510	84	118	1,833	760	**4,415**
2010	110	1,515	84	119	1,853	761	**4,442**
	Aeroplanes	**Microlight [1 & 2]**	**Amateur-Built [1]**	**Gliders [2]**	**Other [3]**	**Rotorcraft**	
2012	1,985	1,029	316	417	311	793	**4,851**
2013	1,976	1,026	291	443	307	831	**4,874**
2014	1,964	1,058	289	426	329	862	**4,928**
2015	1,970	1,082	292	430	335	869	**4,978**
2016	1,981	1,091	300	469	402	874	**5,117**
2017	2,001	1,105	323	453	470	869	**5,221**
2018	2,017	1,123	326	462	476	887	**5,291**

The data does not differentiate if airplane is used for GA or commercial operations.
In 2006, the CAA stopped publishing the number of registered aircraft by weight in favor of classes.
In 2012, the CAA began publishing aircraft registry statistics by aircraft class.

1. Amateur-built aircraft includes airplanes, gliders, and helicopters.
2. Gliders includes gliders, paragliders, power gliders, amateur-built gliders, and hang gliders.
3. Other includes parachutes, gyroplanes, balloons, and jetpack.

Source: Civil Aviation Authority of New Zealand, www.caa.govt.nz

4.5 Singapore—Number of Aircraft by Type (2016–2018)

Year	General Aviation Airplanes		Rotorcraft	Airline	Total Aircraft
	Piston	Turbine			
2016	15	0	1	203	**219**
2017	15	0	1	212	**228**
2018	15	0	1	228	**244**

Source: Civil Aviation Authority of Singapore, www.caas.gov.sg

CHAPTER **FIVE**

SELECT OTHER GA AIRCRAFT REGISTRY DATA FOR LARGE FLEETS

5.1 Brazil—Number of Aircraft Registrations by Type (2016–2017)

Year	Airplanes				Other Aircraft					Total Aircraft
	Piston-Engine	Agricultural	Turboprop	Jet Turbine	Rotorcraft	Sailplanes	Balloons	Dirigibles	Experimental	
2016	16,503	n/a	1,798	2,445	2,579	592	n/a	n/a	n/a	**23,984**
2017	16,446	n/a	1,858	2,507	2,590	609	n/a	n/a	n/a	**24,256**

The experimental category includes ultralights, balloons, gyrocopters, sailplanes, motorpowered sailplanes, dirigibles, and experimental airplanes starting in 2010.
ANAC began identification of agricultural aircraft in 2012. The data set for agricultural aircraft captures aircraft also identified in other columns.

Aircraft registration data for 2014 and 2015 was not available at time of publication.
The data for 2016–2017 does not include aircraft that have not been classified by ANAC.

Source: Agência Nacional de Aviação Civil (ANAC), Registro Aeronáutico Brasileiro (RAB), Brazil, www.anac.gov.br

5.2a South Africa—Number of General Aviation Aircraft by Type (2008–2014)

Year	Aeroplanes											Rotorcraft		Sport, Rec., Gliders, & Other	Total Aircraft
	Piston-Engine Powered				Turboprop				Turbojet						
	One-Engine	Two-Engine	Other	Agricultural	One-Engine	Two-Engine	Other	Agricultural	Two-Engine	Three-Engine	Other	Piston	Turbine		
2008	2,666	755	7	153	108	324	10	55	299	18	74	575	434	5,215	**10,693**
2009	2,712	751	7	154	105	329	9	54	315	15	82	604	461	5,352	**10,950**
2010	2,745	713	8	154	111	353	9	55	339	15	92	635	474	5,500	**11,203**
2011	2,808	710	9	152	112	353	9	54	365	16	93	669	459	5,674	**11,483**
2012	2,851	707	10	153	113	349	8	54	377	18	87	671	502	5,846	**11,746**
2013	2,898	711	12	154	115	341	7	55	381	18	88	680	522	5,964	**11,946**
2014	2,893	716	28	157	120	347	8	60	395	18	87	687	540	6,072	**12,128**

Source: South African Civil Aviation Authority, www.caa.co.za

5.2b South Africa—Number of Aircraft by Type and Certification (2013–2018)

Year	Aircraft Type						Type Certified	Non Type Certified	Total Aircraft
	Piston-Engine Powered	Turboprop	Turbojet	Rotorcraft	Recreational	UAS			
2013	3,727	517	485	1,187	5,874	n/a	5,914	5,889	**11,803**
2014	3,779	516	492	1,207	5,992	n/a	5,994	5,992	**11,986**
2015	3,796	529	501	1,227	6,106	n/a	6,053	6,106	**12,159**
2016	3,805	532	511	1,268	6,198	252	6,126	6,203	**12,589**
2017	3,804	534	522	1,318	6,287	517	6,165	6,293	**12,936**
2018	3,823	552	521	1,357	6,332	796	6,253	7,128	**13,381**

The data is updated on March 31 of the year listed.

Source: South African Civil Aviation Authority, www.caa.co.za

The South African Civil Aviation Administration (CAA) changed how it publishes aircraft registration statistics. Table 5.1a shows the old data structure. Table 5.2b shows the new data structure. Non-Type Certified Aircraft (NTCA) are regarded as experimental aircraft. Not all NTCA are experimental aircraft. Experimental refers to construction being mainly amateur-built. There are also production built NTCA that are built to a standard.

CHAPTER **SIX**

U.S. PILOT AND AIRMEN CERTIFICATE STATISTICS

6.1 **Active FAA Certificated Pilots (1990–2018)**

Year	Pilots		Students [7]	Rec. [5]	Sport [6]	Airplane [1]			Rotorcraft (Only)	Glider (Only) [2]	Lighter-Than-Air	Remote Pilot [9]	Flight Instructor [3]	Instrument Ratings [3, 4]	
	Total	% Women				Private	Commercial	ATP						Total	% of Total
1990	**702,659**	5.77%	128,663	87	-	299,111	149,666	107,732	9,567	7,833	n/a	-	63,775	297,073	51.8%
1991	**692,095**	5.91%	120,203	161	-	293,306	148,385	112,167	9,860	8,033	n/a	-	69,209	303,193	53.0%
1992	**682,959**	5.95%	114,597	187	-	288,078	146,385	115,855	9,652	8,205	n/a	-	72,148	306,169	53.9%
1993	**665,069**	5.93%	103,583	206	-	283,700	143,014	117,070	9,168	8,328	n/a	-	75,021	305,517	54.4%
1994	**654,088**	5.99%	96,254	241	-	284,236	138,728	117,434	8,719	8,476	n/a	-	76,171	302,300	54.2%
1995	**639,184**	5.67%	101,279	232	-	261,399	133,980	123,877	7,183	11,234	n/a	-	77,613	298,798	55.6%
1996	**622,261**	5.57%	94,947	265	-	254,002	129,187	127,486	6,961	9,413	n/a	-	78,551	297,895	56.5%
1997	**616,342**	5.59%	96,101	284	-	247,604	125,300	130,858	6,801	9,394	n/a	-	78,102	297,409	57.2%
1998	**618,298**	5.72%	97,736	305	-	247,226	122,053	134,612	6,964	9,402	n/a	-	79,171	300,183	57.7%
1999	**635,472**	5.81%	97,359	343	-	258,749	124,261	137,642	7,728	9,390	n/a	-	79,694	308,951	57.5%
2000	**625,581**	6.11%	93,064	340	-	251,561	121,858	141,596	7,775	9,387	n/a	-	80,931	311,944	58.6%
2001	**612,274**	5.82%	86,731	316	-	243,823	120,502	144,702	7,727	8,473	n/a	-	82,875	315,276	60.0%
2002	**631,762**	5.49%	85,991	317	-	245,230	125,920	144,708	7,770	21,826	n/a	-	86,089	317,389	58.2%
2003	**625,011**	6.12%	87,296	310	-	241,045	123,990	143,504	7,916	20,950	n/a	-	87,816	315,413	58.7%
2004	**618,633**	6.09%	87,910	291	-	235,994	122,592	142,160	8,586	21,100	n/a	-	89,596	313,545	59.1%
2005	**609,737**	6.11%	87,213	276	134	228,619	120,614	141,992	9,518	21,369	n/a	-	90,555	311,828	59.7%
2006	**597,109**	6.13%	84,866	239	939	219,233	117,610	141,935	10,690	21,597	n/a	-	91,343	309,333	60.5%
2007	**590,349**	6.12%	84,339	239	2,031	211,096	115,127	143,953	12,290	21,274	n/a	-	92,175	309,865	61.5%
2008	**613,746**	5.83%	80,989	252	2,623	222,596	124,746	146,838	14,647	21,055	n/a	-	93,202	325,247	61.4%
2009	**594,285**	6.39%	72,280	234	3,248	211,619	125,738	144,600	15,298	21,268	n/a	-	94,863	323,495	62.4%
2010	**627,588**	5.86%	119,119	212	3,682	202,020	123,705	142,198	15,377	21,275	n/a	-	96,473	318,001	63.0%
2011	**617,128**	6.39%	118,657	227	4,066	194,441	120,865	142,511	15,220	21,141	n/a	-	97,409	314,122	63.6%
2012	**610,576**	6.77%	119,946	218	4,493	188,001	116,400	145,590	15,126	20,802	n/a	-	98,328	311,952	64.2%
2013	**599,086**	6.78%	120,285	238	4,824	180,214	108,206	149,824	15,114	20,381	n/a	-	98,842	307,120	64.8%
2014	**593,499**	6.63%	120,546	220	5,157	174,883	104,322	152,933	15,511	19,927	n/a	-	100,993	306,066	65.5%
2015	**590,038**	6.66%	122,729	190	5,482	170,718	101,164	154,730	15,566	19,460	n/a	-	102,628	304,329	71.3%
2016	**584,362**	6.71%	128,501	175	5,889	162,313	96,081	157,894	15,518	17,991	n/a	20,362	104,224	302,241	72.6%
2017	**609,306**	7.01%	149,121	153	6,097	162,455	98,161	159,825	15,355	18,139	n/a	69,166	106,692	306,652	72.9%
2018	**633,318**	7.34%	167,804	144	6,247	163,695	99,880	162,145	15,033	18,370	n/a	106,321	108,564	311,017	73.1%

1. Includes pilots with an airplane-only certificate. Also includes those with an airplane and a helicopter and/or glider certificate. Prior to 1995, these pilots were categorized as private, commercial, or airline transport, based on their airplane certificate. Beginning in 1995, they are categorized based on their highest certificate. For example, if a pilot holds a private airplane certificate and a commercial helicopter certificate, prior to 1995, the pilot would be categorized as private; 1995 and after, as commercial.
2. Glider pilots are not required to have a medical examination; however, the totals represent pilots who received a medical examination within the last 25 months.
3. Not included in total.
4. The instrument rating is as shown on pilot certificates but does not indicate an additional certificate. The percent of total does not include student, sport, and recreational pilots.
5. Recreational certificate was first issued in 1990.
6. Sport pilot certificate was first issued in 2005.
7. The Federal Aviation Administration (FAA) changed the validity of student pilot certificates in 2010 through an amendment to 14 CFR 61.19(b)(1), resulting in the duration of validity for student pilot certificates for pilots under 40 years of age, increasing from 36 to 60 months. This created an increase in the active student pilot population to 119,119 active airmen at the end of 2010 compared to 72,280 the prior year.
8. 1994 counts based on medical certificates issued 27 or fewer months ago. All other years based on medical certificates issued 25 or fewer months ago.
9. The FAA created the Remote Pilot operator certificate in 2016. The Remote Pilot operator data is not part of the total number of pilots.

Source: FAA

6.2 Active FAA Certificated Pilots and Flight Instructors by State and Territory (as of December 31, 2018)

FAA Region and State	Total Pilots	Students	Recreational	Sport	Airplane			Rotor, Glider, & Balloon	Remote Pilot	Flight Instructor[1]
					Private	Commercial	Airline Transport			
Total[2]	**633,316**	**167,804**	**147**	**6,246**	**175,771**	**115,776**	**167,572**	**81,644**	**106,321**	**108,564**
United States – Total[3]	**591,189**	**156,216**	**147**	**6,220**	**168,049**	**100,793**	**159,764**	**77,259**	**105,419**	**105,642**
Non-U.S. Total[5]	**42,127**	**11,588**	**0**	**26**	**7,722**	**14,983**	**7,808**	**4,385**	**902**	**2,922**
Alabama	7,708	2,004	3	81	2,092	1,998	1,530	1,862	1,519	1,634
Alaska	8,300	1,748	1	56	2,612	1,635	2,248	1,017	834	1,449
American Samoa	3	0	0	0	0	0	3	0	0	0
Arizona	20,515	5,008	0	177	5,066	4,437	5,827	3,368	2,625	4,197
Arkansas	5,444	1,625	1	86	1,653	1,097	982	457	885	796
California	61,786	17,395	7	518	20,524	10,685	12,657	8,948	11,034	9,764
Colorado	18,891	4,359	2	148	4,689	3,114	6,579	2,799	3,588	3,936
Connecticut	4,869	1,107	0	29	1,579	742	1,412	679	977	878
Delaware	1,399	365	0	14	368	223	429	183	361	272
District of Columbia	644	214	0	4	209	85	132	75	146	109
Federated States of Micronesia	2	0	0	0	0	2	0	1	0	0
Florida	63,450	18,730	2	578	13,774	10,942	19,424	7,353	8,479	10,951
Georgia	19,423	4,479	4	157	4,585	2,634	7,564	2,231	3,263	3,627
Guam	177	34	0	0	18	20	105	29	26	46
Hawaii	3,421	855	0	16	554	709	1,287	769	717	760
Idaho	5,401	1,303	2	88	1,726	1,095	1,187	918	1,026	987
Illinois	17,105	4,226	6	303	5,090	2,568	4,912	1,735	3,594	3,480
Indiana	10,396	2,826	4	205	3,282	1,648	2,431	976	1,893	1,788
Iowa	5,195	1,358	6	99	2,046	927	759	552	1,297	825
Kansas	7,135	1,790	3	88	2,622	1,264	1,368	767	1,327	1,385
Kentucky	6,244	1,543	6	58	1,641	856	2,140	773	1,192	1,083
Louisiana	5,531	1,521	0	66	1,626	1,121	1,197	919	1,153	907
Maine	2,498	589	1	53	852	470	533	307	568	395
Marshall Islands	1	0	0	0	0	0	1	0	0	0
Maryland	8,342	2,887	3	91	2,235	1,272	1,854	1,061	1,868	1,399
Massachusetts	8,034	2,371	1	65	2,730	1,220	1,647	939	1,642	1,198
Michigan	14,258	3,545	8	216	4,757	2,248	3,484	1,451	2,615	2,606
Minnesota	12,890	2,805	1	109	3,975	2,073	3,927	1,018	2,063	2,714
Mississippi	4,452	1,432	1	31	1,148	860	980	469	840	654
Missouri	9,734	2,606	4	165	3,111	1,657	2,191	1,188	1,954	1,631
Montana	3,984	991	2	35	1,370	896	690	619	714	701
Nebraska	3,661	1,037	0	38	1,288	637	661	279	818	530
Nevada	7,807	1,578	1	58	1,760	1,462	2,948	1,562	1,222	1,682
New Hampshire	3,802	735	2	49	990	583	1,443	587	583	786
New Jersey	8,891	2,515	3	42	2,579	1,360	2,392	1,217	1,865	1,612
New Mexico	4,422	1,192	2	76	1,463	1,018	671	1,310	758	611
New York	16,529	5,387	13	137	5,119	2,693	3,180	2,116	3,764	2,697
North Carolina	15,492	3,720	4	166	4,438	2,453	4,711	1,964	3,534	2,819
North Dakota	3,614	1,156	0	26	1,054	1,080	298	199	542	468
Northern Mariana Islands	14	5	0	0	1	4	4	1	2	3
Ohio	15,820	3,962	21	253	5,177	2,354	4,053	1,745	3,138	3,008
Oklahoma	8,593	2,709	1	55	2,629	1,594	1,605	708	1,359	1,376
Oregon	9,603	2,523	2	104	3,261	2,067	1,646	1,873	2,017	1,726
Palau	1	0	0	0	1	0	0	1	0	0
Pennsylvania	15,704	4,019	9	195	4,681	2,435	4,365	2,304	3,041	2,848
Puerto Rico	1,661	693	0	48	325	231	364	149	165	230
Rhode Island	975	284	0	9	292	148	242	101	205	146
South Carolina	7,173	1,690	0	77	2,031	1,143	2,232	908	1,350	1,211
South Dakota	2,392	562	1	56	790	524	459	289	387	442
Tennessee	12,925	3,125	3	112	3,213	1,954	4,518	1,699	2,041	2,410
Texas	54,446	14,168	4	402	13,673	8,710	17,489	6,816	9,484	9,467
Utah	9,129	2,483	0	74	2,295	1,571	2,706	1,258	1,488	1,856
Vermont	1,259	306	1	10	451	255	236	243	255	193
Virgin Islands	166	50	0	1	45	29	41	21	9	22
Virginia	14,761	3,792	5	154	3,777	2,560	4,473	2,291	3,304	2,894
Washington	21,089	5,045	2	214	5,985	3,288	6,555	2,777	3,157	4,037
West Virginia	1,813	563	1	41	568	319	321	233	485	289
Wisconsin	9,584	2,362	3	262	3,405	1,346	2,206	767	1,818	1,650
Wyoming	1,908	511	1	22	705	336	333	262	391	295
AA – Americas[4]	20	2	0	0	8	3	7	4	1	7
AE – Europe and Canada[4]	284	84	0	2	61	56	81	52	17	97
AP – Pacific[4]	419	242	0	1	50	82	44	60	19	58

1. Not included in total.
2. Includes non-U.S total.
3. Includes American Samoa, Federated States of Micronesia, Guam, Marshall Islands, Northern Mariana Islands, Palau, Puerto Rico, and Virgin Islands.
4. Military personnel holding civilian certificates and stationed in foreign country.
5. Non-U.S. are non-U.S. nationals who hold FAA certificates.

Source: FAA

6.3 Active FAA Pilot Certificates Held by Category and Age Group of Holder (as of December 31, 2018)

Age Group	Type of Pilot Certificate								
	Total Pilots	Student	Recreational	Sport Pilot	Private	Commercial	Airline Transport	Remote Pilot	CFI
Total	**633,316**	**167,804**	**147**	**6,246**	**175,771**	**115,776**	**167,572**	**106,321**	**108,564**
14–15	294	294	0	0	0	0	0	0	0
16–19	16,932	13,150	0	10	3,570	202	0	1,348	47
20–24	63,652	35,695	11	103	15,849	11,047	947	7,383	4,365
25–29	72,472	35,699	17	175	13,517	17,738	5,326	12,982	8,092
30–34	61,369	24,487	13	249	13,047	12,362	11,211	15,044	11,488
35–39	57,068	17,231	8	276	12,643	9,828	17,082	14,287	13,090
40–44	48,850	10,930	10	298	12,059	7,523	18,030	11,978	11,070
45–49	49,234	7,857	7	383	12,189	7,347	21,451	11,349	11,557
50–54	55,024	6,944	8	643	14,761	7,756	24,912	9,648	10,899
55–59	60,437	6,127	13	844	19,092	8,760	25,601	8,598	10,047
60–64	55,947	4,266	16	1,053	20,898	9,127	20,587	6,744	8,986
65–69	39,805	2,668	25	929	17,184	8,304	10,695	4,050	7,462
70–74	28,083	1,536	10	684	11,572	7,740	6,541	2,089	6,197
75–79	14,961	648	7	393	6,023	4,671	3,219	616	3,260
80 and over	9,188	272	2	206	3,367	3,371	1,970	205	2,004

Source: FAA

6.4 Average Age of Active FAA Pilots by Category (1994–2018)

Year	Average All Pilots	Type of Pilot Certificate					
		Student	Recreational	Sport Pilot	Private	Commercial	Airline Transport
1994	**41.9**	34.3	46.5	-	43.2	42.4	44.4
1995	**42.9**	34.5	48.3	-	44.6	43.7	44.9
1996	**43.2**	34.6	49.3	-	45.1	44.1	45.1
1997	**43.6**	34.6	49.5	-	45.6	44.6	45.6
1998	**43.8**	34.7	49.8	-	45.9	45.0	45.4
1999	**43.6**	34.6	49.5	-	45.6	44.6	45.3
2000	**43.7**	34.1	49.8	-	45.6	44.9	45.8
2001	**44.0**	33.3	50.8	-	46.0	45.0	46.0
2002	**44.4**	33.7	51.0	-	46.2	45.5	46.6
2003	**44.7**	34.0	51.5	-	46.5	45.6	47.0
2004	**45.1**	34.2	51.3	-	47.0	45.9	47.5
2005	**45.5**	34.6	50.9	53.2	47.4	46.0	47.8
2006	**45.6**	34.4	51.5	52.9	47.7	46.1	48.1
2007	**45.7**	34.0	52.4	52.9	48.0	46.1	48.3
2008	**45.1**	33.6	50.1	53.2	46.9	44.8	48.5
2009	**45.3**	33.5	50.4	53.5	47.1	44.2	48.9
2010	**44.2**	31.4	50.8	53.8	47.6	44.2	49.4
2011	**44.4**	31.4	48.8	54.4	47.9	44.4	49.7
2012	**44.7**	31.5	47.8	54.7	48.3	44.8	49.9
2013	**44.8**	31.5	44.8	55.2	48.5	45.4	49.7
2014	**44.8**	31.5	43.1	55.8	48.5	45.5	49.8
2015	**44.8**	31.4	44.6	56.2	48.5	45.6	49.9
2016	**44.9**	31.7	44.0	56.4	48.4	46.0	50.2
2017	**44.9**	32.5	49.0	57.1	48.9	46.2	50.6
2018	**44.9**	33.1	50.0	57.9	49.0	46.3	51

Source: FAA

6.5 FAA Pilot Certificates Issued by Category (1990–2017)

Year	Student		Private		Commercial		Airline Transport		Helicopter (only)		Glider (only)	
	Original	Additional	Original	Additional	Original	Additional	Original	Additional	Original	Additional	Original	Additional
1990	88,586	-	41,749	19,299	15,500	12,584	8,013	13,540	2,700	266	378	41
1991	82,205	-	49,580	23,630	16,869	13,506	8,437	13,979	3,344	291	487	29
1992	78,377	-	39,968	19,419	14,354	11,630	7,699	13,391	2,684	291	376	32
1993	69,178	-	39,060	18,801	12,645	10,466	6,129	12,995	2,310	30	341	28
1994	66,501	-	32,787	14,568	9,237	8,630	5,360	10,963	1,801	267	320	25
1995	60,497	-	28,333	15,331	9,133	9,042	5,965	13,641	1,724	290	373	83
1996	56,653	-	24,714	18,199	10,245	10,494	7,444	17,229	1,638	349	633	195
1997	60,941	-	21,552	13,522	8,988	9,587	7,045	16,266	1,385	296	501	161
1998	63,037	756	26,297	15,966	10,042	10,269	7,547	19,085	1,530	211	472	105
1999	58,278	1,030	24,630	15,222	9,737	9,963	6,721	19,380	1,514	222	423	98
2000	58,042	1,070	27,223	17,223	11,813	11,652	7,715	20,558	1,776	234	455	62
2001	61,897	1,161	25,372	16,807	11,499	11,115	7,070	21,357	1,698	218	403	77
2002	65,421	1,317	28,659	18,607	12,299	11,628	4,718	18,502	2,073	275	336	38
2003	58,842	1,230	23,866	14,899	9,670	8,872	3,892	13,196	2,013	269	312	47
2004	59,202	1,302	23,031	14,234	9,836	9,635	4,255	15,328	2,736	366	309	43
2005	53,576	1,418	20,889	12,952	8,834	8,874	4,750	15,534	2,917	521	290	27
2006	61,448	1,551	20,217	13,079	8,687	9,603	4,748	15,942	3,569	816	298	42
2007	66,953	1,450	20,299	13,970	9,318	9,574	5,918	15,973	4,073	1,041	263	14
2008	61,194	1,507	19,052	14,409	10,595	10,202	5,204	15,658	3,639	930	204	11
2009	54,876	2,006	19,893	14,570	11,350	9,399	3,113	11,605	3,648	1,011	249	10
2010	54,064	1,057	14,977	10,260	8,056	7,778	3,072	10,890	2,686	670	222	8
2011	55,298	857	16,802	10,703	8,559	10,027	4,677	13,694	3,123	894	219	10
2012	54,370	694	16,571	10,720	8,651	9,341	6,396	12,768	2,892	900	180	0
2013	49,566	676	15,776	10,098	8,140	7,922	8,346	13,288	2,888	899	163	1
2014	49,261	698	17,795	11,396	9,803	8,840	7,749	19,481	3,754	1,072	195	5
2015	49,062	590	16,473	11,067	9,211	8,348	6,544	19,823	2,999	957	188	3
2016	36,712	174	17,082	11,900	10,191	9,564	9,520	20,747	2,759	782	170	1
2017	38,401	0	17,752	12,555	10,506	10,508	4,449	20,723	2,552	721	152	2

An additional rating is added to an existing pilot certificate (e.g., instrument rating added to a private certificate).

Student certificates issued are estimated. They include those with a medical certification, as well as those that do not require a medical examination. Until April 2016, data displayed combined FAA Medical Certificate and Student Pilot Certificates issued, nearly all obtained through the Medical Certification System. As such, the numbers included both first time applications and renewals. Student medical certifications remained valid for 24 calendar months for pilots age 40 or older, and for 60 months for pilots under the age of 40. As of April 2016, combined medical certificate and pilot certificates are no longer issued, and there will be no expiration date on the new student pilot certificates. Designated examiners, FAA inspectors, and Certified Flight Instructors (CFIs) process student pilot certificates, and FAA issues the certificate.

Source: FAA

DEFINITIONS

Active Pilot — A pilot who holds a pilot certificate and a valid medical certificate (except for sport pilots).

Airman — A pilot, mechanic, or other licensed aviation technician. The term refers to men and women.

Airman Certificate — A document issued by the Administrator of the Federal Aviation Administration. The Airman Certificate certifies that the holder complies with the regulations governing the capacity in which the certificate authorizes the holder to act as an airman in connection with an aircraft.

6.6 FAA Non-Pilot Certificates (2000–2018)

Year	Mechanic	Repairman	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer	Flight Attendant [3]
2000	344,434	38,208	10,477	72,326	16,340	570	65,098	n/a
2001	310,850	40,085	7,927	72,261	16,070	509	65,398	n/a
2002	315,928	37,114	8,063	73,658	16,695	431	63,681	n/a
2003	313,032	37,248	7,883	72,692	16,955	382	61,643	n/a
2004	317,111	39,231	8,011	73,735	17,493	336	59,376	n/a
2005	320,293	40,030	8,150	74,378	18,079	298	57,756	125,032
2006	323,097	40,329	8,252	74,849	18,610	264	55,952	134,874
2007	322,852	40,277	8,186	74,544	19,043	250	54,394	147,013
2008	326,276	41,056	8,248	74,983	19,590	222	53,135	154,671
2009	329,027	41,389	8,362	75,461	20,132	181	51,022	156,741
2010	308,367	41,196	8,009	70,560	16,576	171	48,569	156,368
2011	335,431	40,802	8,491	74,586	21,363	146	47,659	167,037
2012	337,775	40,444	8,474	73,599	21,862	141	46,639	172,357
2013	338,844	39,952	8,491	72,493	22,401	126	45,317	179,531
2014	341,409	39,566	8,702	71,755	23,113	115	43,803	188,936
2015	342,528	39,363	8,846	70,957	23,754	102	42,460	200,319
2016	279,435	34,411	5,851	65,053	19,758	67	35,761	212,607
2017	286,268	35,040	6,192	66,423	20,664	64	34,534	222,037
2018	292,002	35,382	6,430	67,784	21,465	58	33,526	231,355

1. Number of non-pilot certificates represents all certificates on record since no medical examination is required.
2. Airmen without a plastic certificate are no longer considered active by the FAA starting with the 2016 data.
3. Flight attendant information was first available from FAA Registry in 2005.

Source: FAA

PILOT CATEGORIES

Student Pilot — A student pilot must be 16 years old, medically certificated by a Federal Aviation Administration (FAA) medical examiner, and may only fly solo under the supervision of a flight instructor. A student pilot may not operate an aircraft that is carrying passengers or that is carrying property for compensation or hire.

Recreational Pilot — A recreational pilot may fly no more than one passenger in a light, single-engine aircraft with no more than four seats, during good weather and daylight hours, and unless otherwise authorized, not more than 50 miles from his or her home airport.

Sport Pilot — A sport pilot may operate a light-sport aircraft under a limited set of flight conditions. The certificate does not require an FAA medical examination, but the pilot can carry a driver's license as proof of medical competence. Holders of a sport pilot certificate may fly an aircraft with a standard airworthiness certificate if the aircraft meets the definition of a light-sport aircraft.

Private Pilot — A private pilot may carry passengers in any aircraft. The private pilot may not act as pilot-in-command of an aircraft that is carrying passengers for compensation or hire or act as pilot-in-command of an aircraft that is being operated for compensation or hire (such as an aircraft hired to conduct pipeline patrol but carrying no passengers).

Commercial Pilot — A commercial pilot may act as pilot-in-command of an aircraft that is carrying passengers for compensation or hire, and as pilot-in-command of an aircraft that is being operated for compensation or hire, but not as pilot-in-command of an aircraft in air carrier service.

Airline Transport Pilot — An airline transport pilot may act as pilot-in-command of an aircraft in air carrier service.

CHAPTER **SEVEN**

AIRPORTS AND AERONAUTICAL FACILITIES

7.1 **Airports by Country, Europe (2010–2014 Estimates)**

Country	Airports with Paved Runways						Airports with Unpaved Runways						Heliports
	Total Airports	Over 10,000 ft	8,000 ft to 10,000 ft	5,000 ft to 8,000 ft	3,000 ft to 5,000 ft	Under 3,000 ft	Total Airports	Over 10,000 ft	8,000 ft to 10,000 ft	5,000 ft to 8,000 ft	3,000 ft to 5,000 ft	Under 3,000 ft	
Albania	**4**	-	3	1	-	-	**1**	-	-	-	1	-	**1**
Andorra	**-**	-	-	-	-	-	**-**	-	-	-	-	-	**-**
Armenia	**10**	2	2	4	2	-	**1**	-	-	-	1	-	**-**
Austria	**24**	1	5	1	4	13	**28**	-	-	1	3	24	**1**
Azerbaijan	**30**	5	5	13	4	3	**7**	-	-	-	-	7	**1**
Belarus	**33**	1	20	4	1	7	**32**	1	-	1	2	28	**1**
Belgium	**27**	6	9	2	1	9	**18**	-	-	-	-	16	**1**
Bosnia-Herz	**7**	-	4	1	-	2	**18**	-	-	1	6	11	**6**
Bulgaria	**124**	2	17	15	-	90	**78**	-	-	-	6	72	**2**
Croatia	**24**	2	6	3	3	10	**45**	-	-	1	6	38	**1**
Cyprus	**13**	-	6	3	3	1	**2**	-	-	-	-	2	**9**
Czech Rep.	**41**	2	9	12	2	16	**87**	-	-	1	26	60	**1**
Denmark	**28**	2	7	4	12	3	**61**	-	-	-	2	59	**-**
Estonia	**13**	2	8	2	1	-	**5**	-	-	1	1	3	**1**
Finland	**75**	3	26	10	21	15	**73**	-	-	-	3	70	**-**
France	**297**	14	26	98	83	76	**176**	-	-	-	67	109	**1**
Georgia	**18**	1	7	3	5	2	**4**	-	-	1	2	1	**-**
Germany	**322**	14	48	60	70	130	**219**	-	-	2	32	185	**2**
Greece	**67**	6	15	19	18	9	**15**	-	-	-	2	13	**9**
Hungary	**20**	2	6	5	6	1	**21**	-	-	2	8	11	**3**
Iceland	**6**	1	-	3	2	-	**93**	-	-	3	27	63	**-**
Ireland	**16**	1	1	4	5	5	**23**	-	-	-	2	21	**-**
Italy	**99**	9	31	18	29	12	**31**	-	-	1	11	19	**5**
Latvia	**19**	1	3	5	3	7	**23**	-	-	-	-	23	**1**
Liechtenstein	**-**	-	-	-	-	-	**-**	-	-	-	-	-	**-**
Lithuania	**26**	3	1	7	2	13	**55**	1	-	-	2	52	**-**
Luxembourg	**1**	1	-	-	-	-	**1**	-	-	-	-	1	**1**
Macedonia	**10**	-	2	-	-	8	**4**	-	-	-	1	3	**-**
Malta	**1**	1	-	-	-	-	**-**	-	-	-	-	-	**2**
Moldova	**5**	1	2	2	-	-	**2**	-	-	-	1	1	**-**
Monaco	**-**	-	-	-	-	-	**-**	-	-	-	-	-	**1**
Montenegro	**5**	-	2	1	1	1	**1**	-	-	-	1	-	**1**
Netherlands	**20**	2	10	2	5	1	**7**	-	-	-	3	4	**1**
Norway	**67**	1	12	11	19	24	**31**	-	-	-	6	25	**1**
Poland	**86**	5	29	37	9	6	**39**	-	-	1	17	21	**6**
Portugal	**43**	5	7	8	13	10	**22**	-	-	-	1	21	**-**
Romania	**26**	4	10	11	-	1	**27**	-	-	-	6	21	**4**
Serbia	**11**	2	3	3	3	-	**19**	-	-	1	10	8	**2**
Slovakia	**19**	2	2	3	3	9	**18**	-	-	-	10	8	**1**
Slovenia	**7**	1	1	1	3	1	**9**	-	-	1	3	5	**-**
Spain	**98**	18	12	19	25	24	**54**	-	-	2	14	38	**10**
Sweden	**149**	3	12	74	23	37	**81**	-	-	-	5	76	**2**
Switzerland	**41**	3	2	13	6	17	**23**	-	-	-	-	23	**1**
Turkey	**89**	16	35	17	17	4	**9**	-	-	1	4	4	**20**
Ukraine	**108**	13	42	22	3	28	**79**	-	-	5	5	69	**9**
United Kingdom	**272**	7	31	93	76	65	**190**	-	-	2	25	163	**9**
Europe Total	**2,401**	165	479	614	483	660	**1,732**	2	-	28	322	1,378	**137**
United States	**5,054**	189	235	1,478	2,249	903	**8,459**	1	6	140	1,552	6,760	**5,287**

Source: CIA World Factbook

7.2 U.S. Civil and Joint Use Airports, Heliports, and Seaplane Bases (2010–2018)

State or Territory	State or Territory Total	Public Use		Civil Private Use Landing Facilities							Military-Only Use
								Other			
		Total	Part 139	Total	Airports	Heliports	Seaplane Bases	Gliderports	Balloon Ports	Ultralight Flightparks	
Grand Total	**19,750**	**5,178**	**526**	**14,120**	**8,405**	**5,425**	**290**	**31**	**13**	**134**	**274**
U.S. – Total	**19,729**	**5,168**	**518**	**14,111**	**8,403**	**5,418**	**290**	**31**	**13**	**134**	**272**
Alabama	**281**	98	9	172	87	81	4	-	-	-	11
Alaska	**734**	408	25	307	245	38	24	-	-	-	19
American Samoa	**4**	3	3	1	1	-	-	-	-	-	-
Arizona	**314**	79	13	219	107	112	-	2	-	6	8
Arkansas	**307**	99	6	199	118	81	-	2	-	4	3
California	**960**	257	30	671	263	404	4	3	-	1	28
Colorado	**449**	76	13	365	186	179	-	1	1	1	5
Connecticut	**146**	23	4	122	35	82	5	-	-	1	-
Delaware	**42**	11	2	30	21	9	-	-	-	-	1
District of Columbia	**20**	3	2	13	-	13	-	-	-	-	4
Florida	**857**	127	26	697	370	289	38	2	-	5	26
Georgia	**461**	110	9	339	227	110	2	1	-	1	10
Guam	**3**	1	1	1	-	1	-	-	-	-	1
Hawaii	**50**	14	8	30	14	16	-	-	-	-	6
Idaho	**280**	119	7	158	108	49	1	-	-	2	1
Illinois	**788**	115	17	665	413	247	5	2	-	5	1
Indiana	**610**	107	11	487	348	123	16	-	-	11	5
Iowa	**289**	121	7	162	79	83	-	-	-	3	3
Kansas	**383**	141	9	238	203	35	-	1	1	-	2
Kentucky	**223**	60	6	157	95	62	-	-	-	4	2
Louisiana	**480**	75	9	381	150	219	12	-	-	20	4
Maine	**175**	68	4	104	64	17	23	-	-	2	1
Maryland	**226**	37	3	182	111	67	4	-	-	-	7
Massachusetts	**241**	40	9	198	39	142	17	-	1	1	1
Michigan	**467**	228	20	236	142	89	5	-	-	2	1
Midway Atoll	**2**	1	1	1	1	-	-	-	-	-	-
Minnesota	**469**	154	9	313	203	59	51	-	-	1	1
Mississippi	**244**	80	11	157	107	50	-	-	-	1	6
Missouri	**518**	132	11	380	251	128	1	-	-	3	3
Montana	**258**	121	10	134	102	31	1	-	-	1	2
N. Mariana Islands	**11**	5	3	6	-	6	-	-	-	-	-
Nebraska	**244**	86	9	156	122	34	-	-	-	-	2
Nevada	**125**	49	4	69	43	26	-	1	-	1	5
New Hampshire	**139**	25	2	114	28	79	7	-	-	-	-
New Jersey	**314**	46	4	256	54	196	6	-	5	-	7
New Mexico	**174**	61	10	107	81	26	-	-	-	1	5
New York	**603**	148	24	448	263	175	10	2	1	3	1
North Carolina	**429**	112	14	300	212	88	-	1	1	4	11
North Dakota	**281**	89	8	190	175	15	-	-	-	-	2
Ohio	**729**	170	12	554	344	209	1	2	1	1	1
Oklahoma	**390**	140	4	240	160	80	-	-	-	4	6
Oregon	**420**	97	8	322	231	90	1	1	-	-	-
Pennsylvania	**821**	132	16	662	316	339	7	2	-	18	7
Puerto Rico	**52**	12	3	39	6	31	2	-	-	-	1
Rhode Island	**31**	8	1	22	3	17	2	-	1	-	-
South Carolina	**196**	68	8	119	86	31	2	1	-	3	5
South Dakota	**178**	74	7	103	70	33	-	-	-	-	1
Tennessee	**311**	81	8	226	124	101	1	-	-	2	2
Texas	**2,006**	391	30	1,578	1,050	528	-	6	-	9	22
Utah	**142**	46	9	93	44	49	-	-	-	-	3
Vermont	**81**	16	2	65	45	14	6	-	-	-	-
Virgin Islands	**8**	2	2	6	-	4	2	-	-	-	-
Virginia	**427**	66	7	340	213	125	2	1	1	1	18
Wake Island	**1**	-	-	-	-	-	-	-	-	-	1
Washington	**552**	137	11	403	240	157	6	-	-	3	9
West Virginia	**120**	35	7	83	38	35	10	-	-	1	1
Wisconsin	**565**	133	9	422	315	95	12	-	-	8	2
Wyoming	**119**	41	9	78	52	26	-	-	-	-	-

Part 139 airport data updated for 2018.

Source: FAA Airport Engineering Division

7.3 U.S. Airports Ranked by Number of General Aviation Operations at Tower (2018)

Rank 2018	Facility	Airport Name and State	General Aviation Operations					Total Airport Operations	Total GA Operations	GA as % of Total	Tower Operations
			IFR GA		VFR GA		Local Civil GA				
			Itinerant	Overflight	Itinerant	Overflight					
1	DVT	Phoenix Deer Valley, AZ	9,749	850	130,951	4,445	269,689	415,166	415,684	98.7%	421,161
2	APA	Centennial Airport, Denver, CO	42,883	63	94,770	3,503	163,040	337,998	304,259	88.7%	343,102
3	HWO	North Perry Airport, FL	5,124	3542	77,037	12,435	201,023	283,217	299,161	98.9%	302,452
4	TMB	Miami Executive Airport, FL	31,015	107	113,594	2,958	112,302	260,491	259,976	98.6%	263,663
5	GFK	Grand Forks Int., ND	5,863	7	6,315	193	246,399	368,385	258,777	70.2%	368,743
6	VNY	Van Nuys, CA	38,985	965	98,173	22,215	90,441	255,855	250,779	89.0%	281,707
7	SEE	Gillespie Field, San Diego, CA	16,547	215	70,738	4,663	157,467	245,873	249,630	99.4%	251,163
8	PRC	Ernest A. Love Field, Prescott, AZ	11,445	20	63,340	291	157,671	235,554	232,767	98.6%	236,186
9	SNA	John Wayne-Orange County, CA	34,477	647	75,746	9,407	112,047	334,529	232,324	67.1%	346,468
10	LGB	Long Beach, CA	23,653	395	73,455	17,064	115,243	256,254	229,810	83.7%	274,425
11	IWA	Phoenix-Mesa Gateway Airport, AZ	19,754	199	45,293	3,973	159,993	288,218	229,212	77.9%	294,361
12	MYF	Montgomery Field Airport, San Diego, CA	23,582	76	78,562	8,988	117,927	226,599	229,135	96.6%	237,164
13	FFZ	Falcon Field, Mesa, AZ	3,751	62	49,812	6,829	166,148	284,966	226,602	77.0%	294,194
14	CHD	Chandler Municipal Airport, AZ	5,681	70	67,426	1,256	151,972	228,589	226,405	97.7%	231,681
15	CNO	Chino, CA	16,584	960	59,460	8,568	126,584	204,311	212,156	99.1%	214,112
16	SFB	Orlando Sanford International Airport, FL	8,221	28	12,871	992	183,175	321,139	205,287	63.7%	322,259
17	HIO	Portland-Hillsboro Airport, OR	16,887	122	65,739	3,202	111,315	198,954	197,265	97.5%	202,343
18	RVS	Richard Lloyd Jones, OK	17,818	63	56,161	766	120,699	197,277	195,507	97.9%	199,680
19	FRG	Republic Airport, Farmingdale, NY	13,895	153	75,788	4,007	96,544	198,407	190,387	90.2%	211,187
20	PMP	Pompano Beach Airpark, FL	6,179	19216	52,438	22,150	83,277	142,288	183,260	94.3%	194,280
21	VRB	Vero Beach Regional Airport, FL	16,558	164	47,935	2,191	115,500	244,943	182,348	73.7%	247,510
22	DAB	Daytona Beach International Airport, FL	18,758	366	25,681	2,874	125,607	313,274	173,286	54.4%	318,778
23	FIN	Flagler Executive Airport, FL	4,245	142	39,289	249	128,617	175,134	172,542	98.2%	175,684
24	EVB	New Smyrna Beach Municipal, FL	8,873	175	43,114	2,931	115,187	168,995	170,280	98.9%	172,184
25	RHV	Reid-Hillview, CA	2,365	122	70,390	2,541	94,415	167,739	169,833	99.3%	170,980
26	FXE	Fort Lauderdale Executive Airport, FL	37,225	811	73,148	7,079	51,077	178,369	169,340	90.7%	186,718
27	FPR	Treasure Coast Int., Fort Pierce, FL	20,949	112	52,862	2,598	92,502	175,744	169,023	94.5%	178,924
28	BJC	Rocky Mtn. Metro. Airport, Denver, CO	15,368	671	51,613	3,078	93,125	170,340	163,855	93.8%	174,731
29	BFI	Boeing Field, King County Airport, WA	30,472	2081	64,028	14,259	49,537	183,268	160,377	76.5%	209,598
30	SDL	Scottsdale Airport, AZ	34,715	713	53,095	6,986	62,245	166,191	157,754	90.7%	173,949
31	TKI	McKinney National Airport, Dallas, TX	9,639	875	33,157	2,319	109,160	157,234	155,150	96.3%	161,125
32	FTW	Fort Worth Meacham Int. Airport, TX	26,512	988	42,201	6,328	78,704	160,741	154,733	89.6%	172,770
33	CRQ	McClellan-Palomar Airport, Carlsbad, CA	35,945	103	46,197	5,497	66,887	156,113	154,629	94.9%	162,884
34	PAO	Palo Alto Airport, CA	5,468	2458	48,080	4,266	91,736	146,181	152,008	96.5%	157,533
35	DTO	Denton Enterprise Airport, TX	8,373	430	53,162	2,710	84,703	147,777	149,378	98.9%	151,026
36	SGJ	Northeast Florida Regional Airport, FL	13,044	0	47,342	1,443	85,715	155,442	147,544	93.4%	157,928
37	VGT	North Las Vegas Airport, NV	7,201	211	43,563	1,772	94,522	168,748	147,269	84.8%	173,586
38	CMA	Camarillo Airport, CA	14,422	4979	53,187	4,995	68,939	141,195	146,522	94.6%	154,907
39	LVK	Livermore Municipal Airport, CA	9,703	15	45,603	1,788	88,359	145,980	145,468	98.4%	147,885
40	RNT	Renton Municipal Airport, WA	4,702	786	40,027	3,481	94,323	143,402	143,319	96.9%	147,851
41	OPF	Miami-Opa Locka Executive Airport, FL	43,239	8	42,312	9,500	47,631	154,167	142,690	87.1%	163,817
42	CRG	Jacksonville Executive at Craig Airport, FL	23,425	124	40,634	1,194	76,142	152,438	141,519	86.7%	163,287
43	PDK	DeKalb-Peachtree Airport, GA	44,604	331	45,897	8,860	41,768	151,132	141,460	86.7%	163,254
44	MRI	Merrill Field, Anchorage, AK	1,887	109	63,449	4,241	67,451	151,400	137,137	86.2%	159,158
45	LAL	Lakeland Linder International Airport, FL	19,065	3358	45,487	6,420	57,538	127,214	131,868	96.2%	137,109
46	TTD	Portland-Troutdale Airport, OR	1,897	1	36,125	2,666	90,144	128,373	130,833	99.4%	131,652
47	HWD	Hayward Executive Airport, CA	8,633	6971	34,732	7,640	71,484	116,406	129,460	68.4%	189,152
48	JRF	Kalaeloa Airport, Kapolei, HI	498	0	17,714	0	111,164	150,843	129,376	85.8%	150,843
49	ISM	Kissimmee Gateway Airport, FL	22,105	219	33,827	18,600	50,219	110,262	124,970	96.0%	130,181
50	DWH	David Wayne Hooks Memo. Airport, TX	14,347	48	41,292	1,936	67,214	127,738	124,837	96.0%	130,005

General aviation operations are defined by the FAA based on the traffic operations counted in the OPSNET.

Total operations include general aviation operations as well as commercial and military operations.
GA does not include FAR Part 135 on-demand operations in this table.

Source: FAA Operations Network (OPSNET)

7.4 **Airports by Type (2004–2016)**

Year	2004	2005	2006	2007	2008	2009	2010	2011	2014	2015	2016
Total Civil Public Use Airports	**5,288**	**5,270**	**5,233**	**5,221**	**5,202**	**5,178**	**5,175**	**5,172**	**5,145**	**5,136**	**5,119**
Civil Public Use Part 139	599	575	604	565	560	559	551	547	537	531	529
Civil Public Use Non-Part 139	n/a	n/a	n/a	4,556	4,642	4,619	4,624	4,625	4,608	4,605	4,590
Civil Public Use Abandoned	10	14	27	18	16	18	14	20	15	14	20
Newly Established Public Use	n/a	n/a	n/a	9	3	5	16	6	10	8	4
Total Civil Private Use Airports	**14,532**	**14,584**	**14,757**	**14,839**	**14,451**	**14,298**	**14,353**	**14,339**	**13,863**	**14,096**	**14,168**
Civil Private Use Airports Abandoned	117	115	133	297	461	360	121	183	307	112	222
Newly Established Private Use	n/a	n/a	n/a	274	151	214	212	20	171	352	305
Military Airports	57	n/a	n/a	261	277	274	274	271	286	287	283
Total Airports by Type	**19,820**	**19,854**	**19,983**	**20,341**	**19,930**	**19,750**	**19,802**	**19,782**	**19,299**	**19,524**	**19,576**
Airports	n/a	n/a	n/a	13,822	13,589	13,494	13,473	13,450	13,089	13,156	13,154
Heliports	n/a	n/a	n/a	5,708	5,568	5,571	5,650	5,686	5,553	5,709	5,763
Seaplane Bases	n/a	n/a	n/a	527	503	497	496	497	488	493	497
Gliderports	n/a	n/a	n/a	35	35	35	35	35	36	35	35
Stolports	n/a	n/a	n/a	87	82	n/a	n/a	n/a	n/a	n/a	n/a
Balloon Ports	n/a	n/a	n/a	15	14	14	13	13	13	13	13
Ultralight Flightparks	n/a	n/a	n/a	147	139	139	135	131	120	118	114

The category "stolport" was eliminated in 2009.
The data is as of December 31 for the years listed.

Source: FAA Administrator's Factbook

CHAPTER **EIGHT**

SAFETY AND ACCIDENT STATISTICS

8.1 U.S. General Aviation Accidents, Fatal Accidents, and Fatalities (2000–2018)

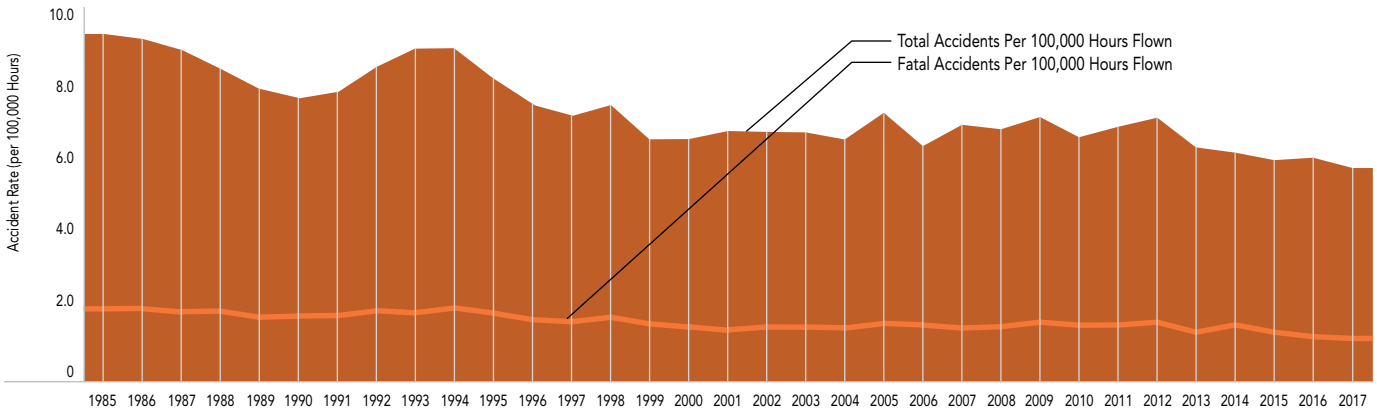
Year	Accidents		Accidents		Fatalities		Flight Hours	Rate	
	All	Excluded	Fatal	Excluded	Total	Aboard		All	Fatal
2000	1,837	7	345	7	596	585	27,838,000	6.57	1.21
2001	1,727	3	325	1	562	558	25,431,000	6.78	1.27
2002	1,716	7	345	6	581	575	25,545,000	6.69	1.33
2003	1,741	4	352	3	633	630	25,998,000	6.68	1.34
2004	1,619	3	314	0	559	559	24,888,000	6.49	1.26
2005	1,671	2	321	1	563	558	23,167,712	7.20	1.38
2006	1,523	2	308	1	706	547	23,962,936	6.35	1.28
2007	1,654	2	288	2	496	491	23,818,668	6.94	1.20
2008	1,568	2	277	0	496	487	22,804,648	6.87	1.21
2009	1,480	4	275	1	479	470	20,861,866	7.08	1.32
2010	1,441	3	271	2	458	455	21,688,409	6.63	1.24
2011	1,471	3	270	1	458	447	21,488,000	6.84	1.24
2012	1,472	1	273	1	438	438	20,880,993	7.05	1.30
2013	1,223	3	221	3	390	386	19,492,356	6.26	1.12
2014	1,224	0	256	0	423	413	19,617,389	6.24	1.31
2015	1,211	7	230	4	378	375	20,576,000	5.85	1.10
2016	1,267	3	213	3	386	379	21,333,747	5.93	0.98
2017	1,233	3	203	1	330	330	21,702,719	5.67	0.93
2018P	1,052	n/a	219	n/a	n/a	n/a	n/a	n/a	n/a

P = Preliminary

Source: NTSB, FAA, and GAMA

General Aviation as defined by NTSB includes operations under Part 91, Part 91K, Part 125, Part 133, and Part 137 for the purpose of accident statistics.
Excluded "Accidents" and "Fatalities" are suicide/sabotage and stolen/unauthorized events, which are not included in rates.

FIGURE 8.1 Accident Rates in U.S. General Aviation (1985–2017)



Source: NTSB, FAA, and GAMA

8.2 U.S. On-Demand FAR Part 135 Accidents, Fatal Accidents, and Fatalities (2000–2018)

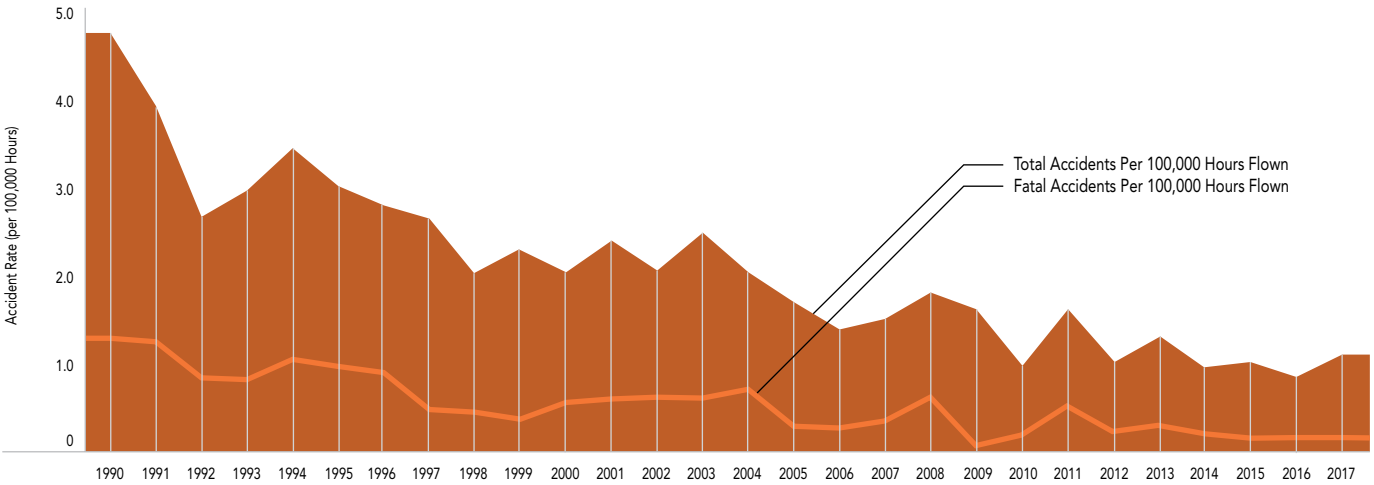
Year	Accidents		Accidents		Fatalities		Flight Hours	Rate	
	All	Excluded	Fatal	Excluded	Total	Aboard		All	Fatal
2000	80	0	22	0	71	68	3,930,000	2.04	0.56
2001	72	0	18	0	60	59	2,997,000	2.40	0.60
2002	60	0	18	0	35	35	2,911,000	2.06	0.62
2003	73	0	18	0	42	40	2,927,000	2.49	0.61
2004	66	0	23	0	64	63	3,238,000	2.04	0.71
2005	65	0	11	0	18	16	3,814,671	1.70	0.29
2006	52	0	10	0	16	16	3,742,230	1.39	0.27
2007	61	0	14	0	43	43	4,033,313	1.51	0.35
2008	58	0	20	0	69	69	3,204,726	1.81	0.62
2009	47	0	2	0	17	14	2,900,660	1.62	0.07
2010	30	0	6	0	17	17	3,113,218	0.96	0.19
2011	50	0	16	0	41	41	3,082,000	1.62	0.52
2012	38	0	8	0	12	12	3,521,974	1.02	0.23
2013	45	0	10	0	25	25	3,384,502	1.30	0.30
2014	35	0	8	0	20	20	3,653,797	0.96	0.22
2015	39	0	7	0	27	27	3,566,000	1.07	0.20
2016	30	0	7	0	19	19	3,499,517	.89	0.20
2017	43	0	7	0	15	15	3,509,451	1.23	0.20
2018P	40	n/a	5	n/a	n/a	n/a	n/a	n/a	n/a

P = Preliminary
Excluded "Accidents" and "Fatalities" are suicide/sabotage and stolen/unauthorized events, which are not included in rates.
In 2002, FAA changed its estimate of air taxi activity. The revision was retroactively applied to the years 1992 to present. In 2003, the FAA again revised flight activity estimates for 1999 to 2002.

U.S. air carriers operating under 14 CFR Part 135 were previously referred to as Scheduled and Nonscheduled Services. Current tables now refer to these same air carriers as Commuter Operations and On-Demand Operations, respectively, in order to be consistent with definitions in 14 CFR 119.3 and terminology used in 14 CFR 135.1. On-Demand Part 135 operations encompass charters, air taxis, air tours, or medical services (when a patient is on board).

Source: NTSB

FIGURE 8.2 Accident Rates in U.S. On-Demand FAR Part 135 Operations (1990–2017)



Source: NTSB

8.3 European Union General Aviation and Aerial Work Accident Data (2006–2013)

Year	Aircraft with Mass Below 2,250 Kg				Aircraft with Mass Above 2,250 Kg				All Aircraft Accidents	
	Accidents		Fatalities		Accidents		Fatalities		Accidents	
	Total	Fatal	Aboard	Ground	Total	Fatal	Aboard	Ground	Total	Fatal
2006	1,121	151	231	3	36	10	29	-	1,157	161
2007	1,157	142	238	5	30	10	18	1	1,187	152
2008	1,145	140	216	2	32	10	23	1	1,177	150
2009	1,234	163	253	4	19	9	18	-	1,253	172
2010	1,047	129	189	1	31	6	14	-	1,078	135
2011	1,109	169	253	1	34	12	29	-	1,143	181
2012	918	133	226	1	10	2	2	1	995	148
2013	948	128	202	-	15	3	7	-	1,006	139

Source: EASA Annual Safety Review

The European Aviation Safety Agency (EASA) includes aircraft registered in Member States that are balloons, aeroplanes, gliders, gyroplanes, helicopters, microlights, motor gliders, and other aircraft, among general aviation accidents that occurred in general aviation operations and while conducting aerial work. This data does not include general aviation aeroplanes conducting Commercial Air Transport operations.
Data from 2006–2008 does not include Italy, Liechtenstein, Luxembourg, and Slovenia.
Data after 2012 includes aerial work accidents in the "All Aircraft" total data only and is not part of the other columns.
General aviation accident data is not available for years after 2013 in this format. See Table 8.4 for EASA's new accident data structure.
NOTE: The 2018 Annual report will be last year when this table is included. The 2019 annual report (published in 2020) will not include this table.

8.4 European Union Aviation Accidents (2014–2017)

Year	General Aviation												Commercial								All Aircraft Accidents		
	Aeroplane		Rotorcraft		Glider		Microlight		Balloon		Bus. Aviation		Specialised Operations				Commercial Air Transport						
											Aeroplane		Aeroplane		Rotorcraft		Aeroplane		Rotorcraft				
	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Total	Fatal	Fatalities
2014	421	53	73	9	195	18	204	30	11	0	3	1	24	5	11	2	27	1	6	1	975	120	313
2015	320	41	40	6	180	24	n/a	n/a	9	2	n/a	n/a	29	7	9	2	25	1	10	1	622	84	283
2016	311	46	42	9	167	19	n/a	n/a	12	1	n/a	n/a	23	6	13	0	20	1	8	3	596	85	145
2017	321	34	22	3	138	25	n/a	n/a	17	0	0	0	29	3	12	3	15	0	4	1	558	69	110

Source: EASA Annual Safety Review

EASA has changed how the agency publishes safety statistics. Table 8.4 shows the new format for 2014 while Table 8.3 shows the historical data for 2006–2013.
The Commercial Air Transport Aeroplane data provided by EASA does not differentiate between fixed-wing aeroplane operations using general aviation versus larger aircraft and shown as "n/a" in the table.
EASA did not provide separate accident data for Microlight and Business Aviation Aeroplane accidents for 2015, 2016, and 2017.

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