

BUSINESS AVIATION



INSIDER

THE OFFICIAL MAGAZINE OF NBAA

2018-2019

STUDENT EDITION



THE PATH TO SUCCESS

PG 6 Putting Business Aviation Careers on Your Radar

STUDENTS DESIGN AN AIRCRAFT
Using Creativity and STEM Skills

PG 8

READING, WRITING AND FLYING
Aviation High Schools Offer More

PG 12



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Your Future Awaits in Business Aviation



ED BOLEN
President and CEO

It is critically important for any industry to plan for the future.

In business aviation, the current shortage of pilots, maintenance technicians and other professionals

underscores the need for our industry to attract talented and energetic young professionals to continue moving us forward. In short, we need you.

As you read this special student edition of NBAA's magazine, Business Aviation Insider, you will learn that business aviation is a dynamic and exciting industry. For instance, in "Putting Business

Aviation Careers on Your Radar," Larae Stotts explains how internships can give students exposure to multiple rewarding career paths in aviation.

In "Manufacturing Success," high school student Tatiana Forbes tells how she and her classmates used their STEM skills to win an aircraft design competition, which, in turn, gave them an opportunity to build an actual airplane.

In "Flying High at Aviation High Schools," you will learn how Jake Lee, Genesis Santana and hundreds of other students who are enrolled in specialized aviation programs across the country are preparing for business aviation careers while still in high school.

Each of these stories tell how business aviation offers not just high-paying jobs,

but also rewarding careers with clear paths for advancement. As anyone in business aviation can attest, working with others who are proud and passionate about what they do will provide invaluable learning experiences for professional growth and development.

I urge you to explore what your potential role in our vibrant industry may be. Whether considering work as a pilot, aircraft maintenance technician, scheduler, licensed dispatcher, flight attendant or aviation support person – and maybe someday a flight department manager – you'll find that there are many exciting, challenging and rewarding careers in business aviation. We stand ready to welcome you, the next generation of business aviation professionals. ✨



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On the Cover: NBAA member Chantilly Air at Manassas Regional Airport in Virginia hosted the association's 2018 summer interns and young professionals on the staff. Front row (left to right): Jessica Allston, Dan Waters, Morgan Mitchell, Larae Stotts, Emily Tobler, Josey Dunbar, and Marc Hess; back row: Chelsea Cranshaw and Collin King. Photo by John Harrington.



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Nearly 300,000 people fly into Montana each year on general aviation aircraft.

Utah general aviation airports provide more than \$274 million in economic impact annually.


California has 217 public-use general aviation airports and 28,402 FAA-registered aircraft.

Aviation accounts for one-third of Kansas' economy, bolstered by the business aircraft manufacturing capital of the world, Wichita.


10% of Alaskan jobs are related to business flying.

Aviation Nation

Here are fast facts about how general aviation – which includes business flying – benefits communities across the United States.



Nearly 5,400 general aviation aircraft in Michigan are served by 211 general aviation airports.




General aviation supports 6,500 jobs in Kentucky.




Business aviation contributes over \$150 billion annually to the U.S. economy while employing more than 1.2 million Americans.



Teterboro Airport (TEB) alone creates more than 15,000 jobs and \$1.8 billion in annual sales in the region.



Nearly \$15 billion in direct and indirect activity are generated by general aviation in Texas each year.



General aviation is responsible for \$2.5 billion annual payroll to Floridians.



Putting Business Aviation Careers on Your Radar

By Larae Stotts, NBAA Intern, Summer 2018

Air traffic controllers must establish radar contact with aircraft in order to positively identify and track their positions. Similarly, choosing a career that best suits us individually requires pinpointing professional opportunities and adding them to our radar by taking a close, “insider” look at them.

Many students find themselves unexpectedly undergoing a process of discovery during an internship. Options that they had not previously considered are presented during the course of the internship, evoking a strange sense of childlike wonder. Career paths and employment opportunities that they previously knew nothing about begin to emerge.

Participating in an internship program is one of the most effective ways of parsing where each responsibility lands within an organization. As job descriptions “come alive,” interns are able to run litmus tests, imagining themselves in any role within the organization in order to determine their personal best fit.

For example, Dan Waters recently had the opportunity to imagine himself in a number of positions as a summer intern with NBAA’s Air Traffic Services, a team of association staff members based at the FAA Air Traffic Control System Command Center in Warrenton, VA. He holds a degree in aviation administration and air traffic control management and is also an instrument-rated private pilot.

“Being exposed to the different positions within the Command Center was eye opening, but in particular, the ‘severe weather’ position was really interesting to me,” Waters said. “They deal with enroute [air traffic] issues in the National Airspace System. When [airport] departure gates or arrival procedures are shut off because of weather, they find the most efficient route [for airplanes to reach their destinations].”

While Waters knew that his career aim was to work in air traffic control, he was grateful for the opportunity to discover an entirely new career option – the severe weather position – during his internship.



NBAA's four summer 2018 interns were pilots Larae Stotts and Emily Tobler (shown at left and below); Josey Dunbar, a student at the University of Redlands in California (second from left below); and Dan Waters (below).

“Entire organizations and interesting projects are in motion that you have yet to discover, and interning is one of the most effective ways to uncover them.”

Emily Tobler, a senior at Missouri’s Saint Louis University, appreciated the more intimate look at business aviation careers she gained through her internship with NBAA. “My time in a Part 141 flight school had me inching closer to a career in the airlines, so I am incredibly thankful I had the opportunity to spend my summer working on the business aviation side,” she said.

Tobler’s position supporting NBAA’s Operations Service Group had her communicating directly with industry professionals all over the globe. Additionally, she had the opportunity to see the National Transportation Safety Board Training Center in Ashburn, VA, a dream of hers. “This was one of the highlights of my time with NBAA,” she said. “I learned a great deal more about the NTSB’s functions and saw the TWA 800 crash wreckage up-close. What a humbling sight for anyone thinking of entering the aviation industry!”

My own experience interning in the NBAA membership department likewise gave me new experiences and career ambitions. For example, during one project, when I mailed annual Flying Safety Awards to flight departments in recognition of their outstanding safety records, I was surprised to learn about many well-known brands that have entire flight departments, including a Seattle-based company

whose corporate philosophy I have long admired. The company is steadfast in its commitment to employee growth and cultivating human connection, which are values that genuinely embody what I stand for, so when I realized that it has a flight department, my new career goal came to me instantaneously.

Someday, I want to fly for that company, or an organization like it, and that is now a goal I intend to pursue. That is my calling, but I may never have even known this to be a possibility had I not applied for my internship with NBAA.

Just as an air traffic controller reaches out to aircraft to identify their positions, students are most likely to identify specified career paths when reaching out through an internship. Entire organizations and interesting projects are in motion that you have yet to discover, and interning is one of the most effective ways to find and track them.

What aviation career possibilities can you add to your radar? ✨

Larae Stotts is pursuing her aviation management degree at Rocky Mountain College in Billings, MT.



Manufacturing Success

In an annual competition, students apply their creativity and STEM skills to aircraft design.



On this page: Winning students from the 2018 Aviation Design Challenge representing the Erie 1 BOCES Harkness Career and Technical Center in Cheektowaga, NY, including junior Tatiana Forbes (below).



The Aviation Design Challenge is a competition for U.S. high school students to utilize science, technology, engineering and mathematics (STEM) skills in furthering their knowledge of aerodynamics and aircraft design. Sponsored by the General Aviation Manufacturers Association (GAMA) annually since 2013, the contest is open to high school teams across the U.S.

Over the course of three months, students learn the basics of aerospace engineering and apply that knowledge in modifying a virtual Cessna 172SP using flight simulation software from X-Plane. Teams continually refine their designs, seeking the optimum balance in range, payload and efficiency. Judges from GAMA's engineering team then evaluate these modifications, as well as each team's explanations for making those changes.

“You really don’t appreciate how an airplane is built until you do it.”

TATIANA FORBES,
2018 Winning Team, Cheektowaga, NY



Winning students from the 2017 challenge, including Bryant Castro (second from left) representing Olney High School in Olney, TX.

TESTING AND TEAMWORK

Tatiana Forbes competed as a junior on the 2018 winning team from Erie 1 BOCES Harkness Career and Technical Center in Cheektowaga, NY. She developed her team's test scoring criteria and helped test each series of modifications on the simulator.

"It was a lot of flights!" she said. "We made at least 20 changes to the aircraft, and each change required a minimum of two test flights. We ultimately used a lot of aspects of a glider to make [our aircraft] more fuel efficient."

Forbes not only drew from her STEM education at Harkness, but also from her time in a separate school program that provides flight time in general aviation aircraft. "Our class does a lot of work in math and science, mostly aerodynamics, every day," she added.

Bryant Castro, a member of the first-place team for 2017 from Olney High School in Olney, TX, was introduced to the contest by a suggestion from his science teacher. "Mrs. Laurent told us about the competition and we decided on our own to go after it," he said of his fellow team members. "We'd fly our design and record its performance, and then brainstorm on what we could do to make it go faster and farther, using less gas."

One modification made by Castro's team was to decrease the maximum capacity of their aircraft's fuel tank to accommodate just the amount of fuel required in the competition, enabling the team to lengthen their design's wingspan for greater efficiency and takeoff performance while remaining within contest weight limits. "Every change was a tradeoff," he added.



ALL PHOTOS COURTESY OF GAMA



HANDS-ON EXPERIENCE

Every year, four members of the winning team travel with a teacher and chaperone on an all-expenses paid trip to Glasair Aviation, based at Arlington Municipal Airport (AWO) north of Seattle, WA. There, the students helped to assemble a Glasair Sportsman 2+2.

“That was a much more hands-on experience than I thought it would be!” Castro said of building the Sportsman. “It was really cool to participate in the entire process, from laying the fiberglass mold to hanging the wings, landing gear and installing the engine and avionics.”

“It was amazing to go to the actual factory and participate in building an aircraft,” Forbes said. “You really don’t appreciate how an airplane is built until you do it, and it really helped me develop a better understanding of airplanes in general.”

It also gave Forbes a ‘leg up’ on her senior year studies.

“My junior year courses focused primarily on learning the different concepts, and I’m looking forward to applying that knowledge in this year’s classes,” she said. “This entire experience reaffirmed that I want to work in this industry and helped me focus on which colleges I should consider.”

Castro now attends the University of Texas at Austin and is working toward a career in visual entertainment, but aviation and engineering may also play a role in his future. “I really gained a new respect for engineering” from participating in the Aviation Design Challenge, he said. “It definitely helped me see it as another potential career path.” ❖

GAMA is a co-sponsor with NBAA in the No Plane No Gain campaign at www.noplanenogain.org. Learn more and register for the 2019 GAMA Aviation Design Challenge at www.gama.aero/opportunities-in-ga/aviation-challenge.



Flying High at Aviation High Schools

Above, Sisters High School students on an aviation camping field trip; at right, student George Chladek after his first solo flight.

Aviation is part of the daily curriculum at these specialized high schools.

Like millions of high school students across the country, Jake Lee is getting ready to head back to school. The rising junior at Sisters High School in Sisters, OR, will once again settle into the rhythms of the academic year: going to class, joining clubs, chatting at lockers and scheduling flights.

Wait – scheduling flights?

“We have the option to take a course called Flight Science, which prepares us to test for our private pilot’s license,” Lee explains. “Students in the program have access to training flights through the local airport, so when we’re ready we can schedule a flight.”

Lee is one of 58 students enrolled in Sisters High School’s aviation program. In addition to meeting every day for STEM-driven classes taught by a certified flight instructor, students are also able to procure simulator training and flight time on a Cessna 172.

Since much of the training is subsidized by local businesses, fundraising drives and private donations, students have the opportunity to earn their private pilot’s license at about half the cost of doing so at traditional flight schools.

“I’m constantly floored by this community and how much

they support us,” said Sheryl Yeager, who teaches the school’s Flight Science curriculum. “I think people realize what a special program this is.”

Adding demanding aviation training onto an already busy high school schedule may sound difficult, but Lee says the teachers go out of their way to help walk students through the process.

“It might seem a little intimidating at first, but the instructors are really enthusiastic and make it fun,” he said.

When Julie Benson started the program six years ago, there were five students in the course. Now it’s the largest activity program at the school and just received a new simulator donated by Central Oregon Community College.

“It’s been a complete success – we’re getting students who are transferring into Sisters High School specifically for the program,” said Benson, who along with her husband Benny owns Sisters Eagle Airport.

According to Benson, the next phase of the program is an airplane build project. The Outlaw Aviation Club (named after the school’s mascot) is currently seeking grants, donations and sponsors to fund the purchase of a homebuilt airplane kit, which the students will learn how to assemble as part of an aerospace engineering course.

PHOTOS COURTESY OF JULIE BENSON



The curriculum at Sisters High School is just one of the many high school aviation programs across the country. From California to Alabama to the Northeast Corridor, thousands of students are enrolled in aerospace courses that help prepare them for in-demand job opportunities.

“Most of the technicians in the area graduated from our school and they’ll call us saying, ‘We have some open spots – can you give us graduates to interview?’” said Steven Jackson, principal at Aviation High School in Long Island City, NY.

Since 1936, the FAA-certified Aviation Maintenance Technical School has provided students from all five New York City boroughs with a traditional high school education while also preparing them for careers in the aerospace industry.

By successfully completing a series of technical skills rotations, Aviation High School students can earn a highly sought-after FAA A&P license by graduation. Additionally, 160-180 students gain entrance into the school’s fifth-year program, which provides additional training for students to earn their second license – a process that can cost up to \$50,000 but is offered for free by the city.

“It’s a great opportunity and the students compete hard to gain entrance into the program,” said Jackson.

By the time Aviation High School students are seniors, they’ll be spending nearly half their day on vocational training, whether through coursework or internships with local companies at LaGuardia or JFK airports. Despite that core focus, it’s not all wrenches, all the time.

“At the end of the day it’s still a regular school,” said Genesis Santana, a recent graduate currently enrolled in the fifth-year program to earn her A&P license. “We have clubs, athletics, pep

rallies, all the usual classes like English and social studies – but it’s also different because you’re tak-

ing up to four periods of technician coursework by senior year.”

It can be a lot to juggle, but Santana credits the rigorous curriculum and strict, FAA-mandated attendance and pass/fail policies with helping the students develop a strong work ethic.

“Balancing academics, aviation training, extracurriculars and your personal life teaches valuable life skills,” she said. “When you have that experience in high school, you’re ready for college or the job market.”

Whereas Aviation High School builds a high school experience around maintenance training, the new Wichita Public Schools Aviation Pathway program inserts technical training options into the school district’s standard curriculum.

Launching this year with about 250 students, the Aviation Pathway program allows students to pursue electives in two different pathways: aviation production, which focuses on aerospace engineering, and aviation maintenance. Students choose a focus before their junior year and take advanced coursework at both their high school and local tech college.

With the global aerospace industry needing millions of new pilots, maintenance technicians and other skilled professionals over the coming decades, high school aviation programs like these can offer students a head start into promising aviation careers.

“The aviation job market is wide open for these students,” said Sister High School’s Yeager. “Every day I’m grinding into them, ‘Hey, this is real – you can do this for a living.’ It’s just an amazing opportunity.” ❖

NAME THE BUSINESS

How well do you know business aviation? Test your knowledge by seeing if you can name these aircraft models! (Turn the page for answers.)

This light business jet features distinctive over-the-wing engine mounts. You might also be familiar with other products by this company, representing other modes of transportation.

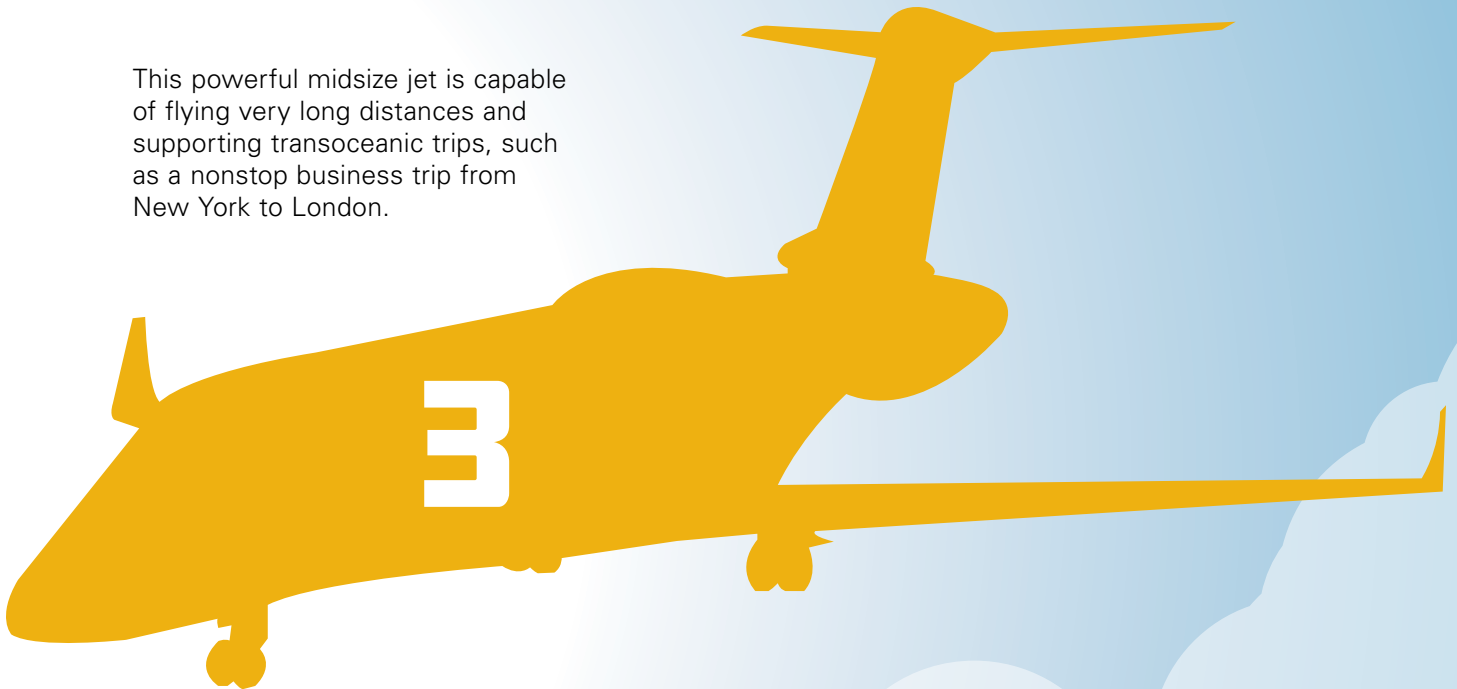


This turboprop aircraft's name implies that it rules the skies, which is fitting since it is widely considered to be one of the quintessential business airplanes.

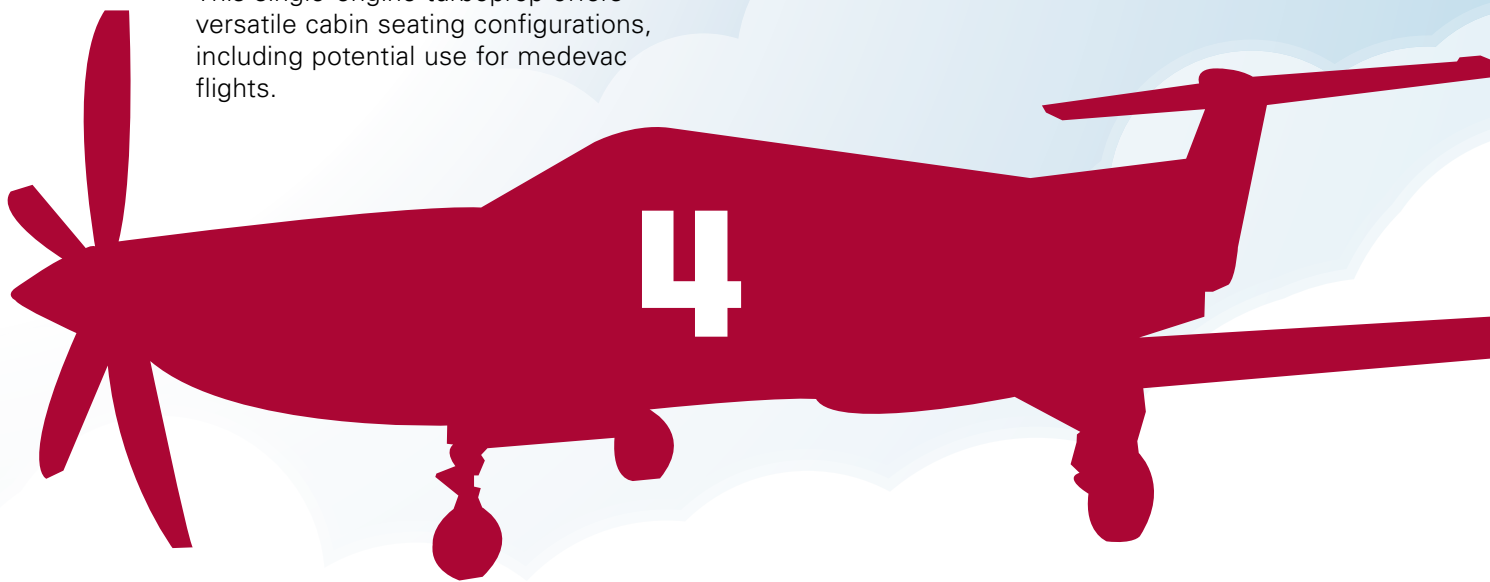


BUSINESS AIRCRAFT

This powerful midsize jet is capable of flying very long distances and supporting transoceanic trips, such as a nonstop business trip from New York to London.



This single-engine turboprop offers versatile cabin seating configurations, including potential use for medevac flights.





Based in Utah, The Leavitt Group holds the distinction of owning the first retail-delivery **HondaJet** (shown above), which supports its privately owned insurance broker business, including 125 offices in 19 states. Using the HondaJet, they can visit five or six states in a three-day trip, saving time and money. www.leavitt.com



Founded nearly 100 years ago by Arthur and Pearl Perdue, poultry producer Perdue Farms is still family-owned, operating a **King Air B200** (shown above) and Gulfstream G150 out of Salisbury Regional Airport in Maryland to support travel to its nearly two-dozen facilities, none of which are near a major commercial airport. www.perdufarm.com



Engine-maker Cummins, based in Columbus, IN, has customers operating its products in some hard-to-reach locations. It also has factories and offices at nearly a dozen states across North America, so its three **Gulfstreams G280s** (one of which is shown above) and one Embraer regional jet meet wide-ranging air travel needs. www.cummins.com



The Denver-based hangar and aviation office facility Aerocolorado was founded by two pilots who saw the value of developing airport real estate. The hangar houses nine airplanes, including the company's Hawker and **Pilatus PC-12** (the latter of which is shown above), as well as other tenant aircraft. www.aerocolorado.com

Read more about NBAA member companies at www.nbaa.org/membership/profiles!

Tips for Successful Scholarship Applications

Did you know? NBAA offers a wide range of aviation scholarships, including ones for students, and there are many others available through groups like AOPA, EAA, General Aviation Manufacturers Association, Women in Aviation, Women in Corporate Aviation, American Association of Airport Executives and International Air Show Council. Organizations closer to your home, such as regional business aviation associations, may also be great sources of scholarship opportunities, enabling you to compete against a smaller pool of applicants.

To improve your chances of scholarship success, be sure to research scholarship opportunities offered by all aviation groups – at the national, regional and local levels. Below is a checklist with four quick tips to use when filling out your applications:



FOLLOW EACH INSTRUCTION

Make a checklist of every task the application asks you to do, and complete each task precisely as instructed. Missing a step might cost you the scholarship.



LEVEL UP YOUR LETTERS OF RECOMMENDATION

Make sure that letters of recommendation written about you stand out from the crowd by creating a list of specific things you have achieved and then offering a different achievement example to each person who has agreed to pen your recommendation. For example: "I helped raise \$5,000 by volunteering in a plane wash," or "I maintained a GPA of 3.4 while working as a ramp agent 20 hours per week." That way, each of your letters will highlight a different strength or accomplishment.



STAY POSITIVE

While it is okay to briefly mention the challenges you have overcome, do not make hardships the focus of your application. Keep the tone light and positive by highlighting the opportunities that have come from overcoming hardship, as well as how you plan to achieve future goals. The end goal is to have the judges rooting for you, not feeling pity.



CHOOSE WORDS WISELY

Select words that showcase both your confidence and intention. For example, rather than saying: "If I am selected for the scholarship, I plan to fly three times weekly," try: "As a grateful recipient of the scholarship, I will achieve my goal of flying three times weekly."

Learn more about NBAA scholarships and apply at www.nbaa.org/scholarships. Research regional business aviation scholarship opportunities by visiting NBAA's regional groups directory at www.nbaa.org/regional.



APPLY FOR AVIATION SCHOLARSHIPS

The NBAA Charities scholarship program offers nearly \$100,000 annually in cash awards as tuition reimbursement for enrolled students. The following scholarships are offered annually, so be sure to check NBAA's website for full details and deadlines:

- Al Conklin and Bill de Decker Aviation Management Scholarship
- William M. Fanning Maintenance Scholarship
- Lawrence Ginocchio Aviation Scholarship
- Eddie Queen Aviation Management Scholarship
- UAA Janice K. Barden Aviation Scholarship
- Fred and Diane Fitts Aviation Scholarship

www.nbaa.org/scholarships



CAREERS IN BUSINESS AVIATION

Let Your Future Take Flight!

Do you dream about working in aviation someday? The National Business Aviation Association (NBAA) has information and resources to introduce you to this exciting and rewarding career path!

From scholarships, to mentoring and networking opportunities, to an annual Careers in Business Aviation Day, to an online Career Center with job listings, NBAA has tools and student discounts you can use to get started on a business aviation career path.

www.nbaa.org/students