



Mid skills gap

Collaborative approaches to solving
the aviation mechanic shortage

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AAR is a global aerospace and defense aftermarket solutions company with operations in over 20 countries. Headquartered in the Chicago area, AAR supports commercial and government customers through four operating segments: Parts Supply, Repair & Engineering, Integrated Solutions, and Expeditionary Services.

Additional information can be found at
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Executive summary

Executive summary



The aviation industry continues to face a worker shortage, as Baby Boomers near retirement age and the number of new technicians continually falls short of demand. Several factors are converging to make things tougher. The COVID-19 pandemic virtually grounded aviation around the world in 2020–21, canceling aircraft orders and causing waves of layoffs. While orders are gaining steam and air passengers are returning, mechanics have been slow to come back. Additionally, aviation maintenance training schools' graduation rates remain far below the levels needed for full staffing by the end of the decade. Moreover, early retirements by the most-experienced workers are exacerbating the shortfall.

But opportunities are plentiful.

To fill the pipeline, employers must break down their silos and collaborate with high schools, colleges, and elected officials to boost training efforts and expand access to aviation maintenance curriculum. The long-fought-for updates to FAA Part 147 regulations that modernized AMT training standards is one example of industry collaboration paying off.

More teamwork is needed to raise young people's awareness of educational opportunities and aviation mid-skills careers. Increasing visibility is the fastest way to attract the next generation of technicians in sustainable numbers.

In this report, AAR — a leading provider of aviation services to commercial and government customers around the world



— shares its successes and offers recommendations to the industry for stepping up recruitment, education, and retention. For example, our partnership with the [nonprofit Choose Aerospace](#), which extends a modern aviation curriculum to interested high schools, colleges and nonprofits, is one of the many early-outreach and engagement programs.

We believe our recommendations to the industry can help close the employment gap. We're issuing a call to aviation companies to help do the following:

- Raise awareness of aviation careers and expand high school feeder programs.
- Work with aviation schools to speed up the adoption of the new Part 147 curriculum standards.



- Work with lawmakers and state agencies, nonprofits and educators to launch a national campaign to raise awareness of aviation careers.
- Encourage training programs to teach people with industry experience how to instruct others to build the faculty population.
- Ask lawmakers to pass common sense immigration policies that allow aviation companies to recruit talent from abroad to meet demand and keep airplanes flying safely.
- Make it easier for veterans to quickly transition their skills to appropriate industry jobs.

- Push to eliminate restrictions on AMTs taking the FAA general exam as pilots can do with their written exams. Getting these exams completed early will lead to increased certifications for our industry.
- Increase training capacity by creating programs to make experienced retirees instructors in education programs.

These processes won't happen overnight. There is much work to be done in the coming years. The goal of this report is to show that the challenges ahead can be overcome if industry employers act collaboratively, creatively, and above all, urgently.

About this report

"Mid skills" is a term we use to describe careers that require industry certifications but not a college degree. When we released our first report, "The Mid Skills Gap in Middle America," in 2011, we partnered with the Manufacturing Institute for a call to action to industry leaders, government officials, heads of nonprofits and educational institutions to collaborate, identify and implement best practices to solve these workforce challenges. We asked them to advocate for and adopt school programs that expose students to mid-skills STEM careers that provide immediate access to employment and experiential learning supported by the needs of business. With high school vocational education programs greatly diminished, fewer transitioning veterans in the pipeline, and in lieu of updated FAA training standards to attract the next generation of AMTs, we advocated for adoption of a nationally recognized and portable

aerospace sheet metal credential that would enable employers to set qualifications, assess skills, and hire from the talent pool.

Due to lack of exposure to these careers, we realized that educators and future workers did not fully understand the career path they needed to take after high school or transitioning out of the military. In 2018, our second report, "EAGLE Pathways: Bridging the Middle Skills Gap to Careers in Aviation," focused on mid-skills credentials and career paths in maintenance and management, public-private partnerships, portable, stackable skills, and onboarding non-credentialed workers faster to give them real-world work experience and a chance to earn while they learn.

This report primarily uses data from the Aviation Technical Education Council's (ATEC) 2022 [Pipeline Report](#).



The mid-skills gap in America

The mid-skills gap in America



For 20 years, aviation executives and higher education officials have warned that an acute shortage of aircraft maintenance technicians (AMTs) could slow expansion and modernization of the global airline fleet. Lack of awareness of mid-skills aviation careers and training programs continues to be the No. 1 barrier to growing an influx of talent as the AMT workforce rapidly ages and retires.¹ AAR is an aviation services provider looking to solve its own and the industry's workforce challenges. This is the third mid-skills gap report we have produced since 2011. That year, the average age of an AMT was 47. Today, it's 53, which is 11 years older than the average U.S. worker as reported by the U.S. Bureau of Labor Statistics.²

Industry-wide, employers are investing in training through public-private partnerships with technical schools, two- and four-year colleges, and proprietary colleges. They are recruiting talent from diverse communities, tapping traditionally underrepresented groups, notably women and people of color, to fill the pipeline.³ However, these efforts tend to be siloed and narrowly crafted to meet the talent needs of a single company or geographical region, not as an overarching, sustainable solution industrywide. Meanwhile, most of the nation's 196 aviation maintenance training schools, which we'll refer to as A&P (airframe and powerplant) schools in this report, are operating at just over half capacity. A faculty shortage at training schools is the second largest barrier cited by industry officials to growing talent.⁴ The fact is an experienced technician can make more money working in the industry than teaching. Entry-level salaries have risen in the last two years by nearly 20 percent due to fierce competition for talent among

major airlines, regional carriers, and aftermarket companies like AAR.⁵ An A&P certificated mechanic can earn a median annual salary of \$65,380 or \$31.52 an hour.⁶ At AAR, they can earn upwards of \$100,000 a year with five years on the job.

COVID-19 impact | industry

In aviation, the early days of the pandemic precipitated work slowdowns, mass layoffs, and employee furloughs. Requests



for new aircraft orders were put on hold but only temporarily. Airlines and MROs have begun to reactivate their lofty expansion plans as the industry rebounds, but they are running up against an unwillingness by employees to return to work. Some have moved on to other companies, switched careers, or retired early to spend time with family. In some cases, they left to avoid COVID-19 testing and vaccine protocols imposed on federally regulated industries, like aviation. In all, the industry

The mid-skills gap in America



lost an estimated 5,000 potentially new mechanics since the pandemic began.⁷ Forecasts predict the global aviation market will need 690,000 new mechanics to maintain the global fleet over the next 20 years.⁸ In order for that to happen, enrollment in A&P schools must grow by 20 percent annually. It's currently growing at 2 percent a year.⁹ That rate is unlikely to improve without: a) a concerted national effort to create robust high school feeders supported by general aviation curriculum into A&P programs; and b) more collaboration between industry, educational institutions, and nonprofits to design and replicate successful pathway models for the benefit of all.

Despite these challenges, aircraft repair stations stand to leverage unprecedented growth in the industry defined by new aircraft orders, rebounded travel and tourism, parting out of legacy aircraft, and updated FAA education and training protocols more aligned with the advanced technical skills in demand today. The aerospace industry is a key indicator of global and domestic economic health. But planes cannot fly safely without people skilled in their ongoing maintenance and repair. The delays and inconveniences travelers have experienced over the previous two years will worsen if major airlines, regional carriers, and the business aviation sector are forced to park aircraft because there aren't enough mechanics to work on them. When the airlines lose money, those costs are passed on to consumers.

Yet, just as major airlines are moving ahead with expansion plans despite the paucity of pilots and crew members, at AAR we are

building capacity to accept new lines of maintenance at two of our four U.S. repair stations.

In this report, we will describe several collaborative steps AAR has taken since 2019 to solve our own workforce challenges that we believe can be replicated and also supported by state and federal grant funding. We recommend the industry adopt similar strategies and work collaboratively to resolve the aircraft mechanic shortage on a broad scale. With this approach, we all win.

“Workforce development is a team effort across industry, education, and government. Given the forecasted demand for aviation maintenance technicians, these efforts could not come at a better time.”

– John M. Holmes, AAR's Chairman, President and CEO



Challenges for aircraft repair stations

Challenges for aircraft repair stations



Repair stations remain the leading employer of technical personnel and half of all certificated mechanics.¹⁰ Nearly 80 percent of those workers and half of all FAA-certificated mechanics are employed by repair stations.¹¹ But major airlines are hiring aggressively, too, and are now the fastest growing employer of new mechanics.¹² In 2021, major passenger and cargo airlines hired 25 percent of all A&P graduates, up from 15 percent in 2020.¹³ What's more, major airlines are beginning to show interest in hiring and training mechanics right out of school, without the benefit of allowing them to develop their skills at repair stations. If the trend continues, repair stations and regional airlines will have to work harder to remain fully staffed as competition accelerates for newly minted A&Ps.

A glimpse at the near future shows a looming worker shortage that the industry is racing to fill. Through 2032, the global fleet is expected to achieve a compound annual growth rate of 4.1 percent,¹⁴ but the pipeline of mechanics will need to increase by at least 20 percent in order to meet demand. And with newer, more sophisticated planes, mechanics will have to be more tech-savvy than ever while also being experienced working on legacy aircraft with up to 20 years of service. Operations and maintenance can expect increasing digitalization of paperwork required for an aircraft inspection, the use of drones to perform skin mapping of aircraft, and virtual reality technology to amplify training and collaboration. That will require a significant range of knowledge and new skills from the next generation of A&P mechanics.

Also on the industry's horizon is a wave of retirements as Baby Boomers age out of the aviation maintenance workforce. Nearly



40 percent of all current mechanics — more than 90,000 — will reach retirement age by 2031, while only 79,000 mechanics will take their place.¹⁵ As aviation continues to grow over the next decade, that 11,000-person shortfall likely will become even greater. This is a clear call for a heightened emphasis on hiring and retaining mechanics.



Our Airframe MROs in North America

Our Airframe MROs in North America



AAR is the leading independent provider of aircraft maintenance, repair, and overhaul (MRO) services for commercial airlines in North America.



North American Repair & Engineering locations in:

- Rockford, Illinois
- Indianapolis, Indiana
- Miami, Florida
- Oklahoma City, Oklahoma
- Trois-Rivières, Québec, Canada
- Windsor, Ontario, Canada

Our Airframe MROs in North America



Competition for talent has led us to increase salaries, offer more flexible work schedules, and improve operational efficiencies. At this writing, AAR has approximately 200 [open positions](#) at our U.S. repair stations. Though we prefer to grow talent locally, the talent shortage has led us to hire foreign talent, primarily from South America and Mexico, for whom we have secured work visas. But even that option has limits due to work visa restrictions that lawmakers, thus far, have been unwilling to change.

The immigration policies in Canada are more flexible and include a pathway to citizenship. In Canada, once we advertise open positions and demonstrate to provincial officials that we have been unable to fill the jobs using local talent, we are given the green light to work with a recruiter to bring in talent from around the world. It takes about three to four months to conduct interviews and acquire work visas. Today, we have AMTs from 29 different countries working at our repair stations in Trois-Rivières, Québec, and Windsor, Ontario. In Windsor, employees can apply for citizenship after a year, and after two years in Trois-Rivières, where they also are required to learn to speak conversational French.

COVID-19 impact | AAR

Aircraft maintenance and repair work slowed dramatically in the first year of the pandemic. At AAR, we furloughed over 1,000 employees in March and April 2020, but were able to bring most of them back by September of that year. Then hiring and retention were further challenged by COVID-driven realities further impacting **recruitment, retirement, and how we work on airplanes.**

Recruitment

AAR recruits FAA-certificated mechanics and non-certificated airframe technicians right out of A&P school. An A&P certificate is essentially a license to learn. Depending on the individual, we spend up to three months training them in AAR and customer protocols. We offer [several pathways to employment](#) (described later) and incentives, such as tuition reimbursement of up to \$15,000 at EAGLE Pathway partner schools and earn while you learn opportunities through dual credit articulation agreements with high schools and colleges. These initiatives, combined with increases in salaries, including a step-level wage progression to incentivize tenured mechanics and managers in the MRO, on top of overtime pay, equal significant investments that have increased the cost of doing business.

Retirement

There is no available data that tracks early retirement. But anecdotally, our MRO managers and HR professionals say some of their most experienced mechanics have called it quits over the last two years due to a pandemic-inspired heightened focus on personal fulfillment and spending time with loved ones.

“We have had guys in their mid-50s who said they wanted to enjoy life while they still could,” said Stan Mayer, Vice President, Operations, AAR Airframe Services, Oklahoma City.

Other than taking a job with an airline, in exit interviews, some employees indicated they were leaving to pursue other career interests or to evade COVID-19 testing and vaccine protocols mandated at the time by the federal government. Now, as the

Our Airframe MROs in North America

industry rebounds, luring early retirees back into service has been difficult, if not impossible.

How we work on airplanes

Adapting to adverse conditions has inspired innovation at AAR. Today, our repair stations are operating more efficiently with fewer people. But that has also changed the way we work. No longer does a single crew flow an aircraft in and out of the hangar. We have switched to a total facility crew approach, dividing the work into four 10-hour days, depending on the lines of maintenance, with a small crew on weekends. This structure requires more management and a more detailed critical flow plan but has enabled us to get airplanes out on time.

In addition, our MRO managers have adjusted schedules and work flows to manage staff shortages as well as requests for weekends off, which have increased since COVID-19.

“People were leaving and even taking a pay cut to get weekends off,” Mayer said. “Now everyone has three weekends a month off and works one weekend.”

Looking ahead

AAR is improving efficiencies by leveraging technology to maintain our safety standards while doing high-quality work on aircraft with smaller teams. In the immediate future, AAR is poised to grow our capacity within our network, focusing



Our Airframe MROs in North America



on regions that have large labor force participation and a mature education system with a robust aviation curriculum. Over the next two to three years, AAR stands to create up to 600 new positions in the U.S. as we build out hangar capacity in Miami and Oklahoma City and add new lines of maintenance to existing infrastructure in Rockford and Indianapolis.

**“We have the facilities to grow.
We just need the talent.”**

– Ryan Goertzen
Vice President of Workforce Development, AAR





FAA Part 147



FAA Part 147

Another significant barrier cited by industry to attract young people to aviation maintenance careers was the FAA's outdated Part 147 education and training standards. Aviation's decadelong push to strip away requirements, such as training on dope and fabric planes and piston-driven engines from 50 years ago, ended when the new FAA Part 147 regulations went into effect in September 2022. The law updating the standards, passed with bipartisan support in Congress, also removes a seat time requirement that measures competency based on hours, a false equivalency for work readiness, and paves the way for more collaboration between industry, secondary, and post-secondary schools to develop curriculum, new career paths, and additional training locations.

It is too early to tell whether the new regulations will speed high school and post-secondary students into the training and hiring pipeline, not without a robust general aviation curriculum and high school feeder system to support it. But the response by A&P schools to the changes has been positive. All 192 were able to begin operating under the new regulations by the September deadline. Crystal Maguire, Executive Director of the Aviation Technician Education Council (ATEC), an industry-leading advocate for modernizing the standards, says she doesn't expect to see a significant shift in the way students are trained right away.

"I suspect we'll see some schools working on curriculum changes for the 2023–24 academic year. I think some will get innovative out the gate, but I think they will be in the minority," Maguire said. "It costs industry money to invest in training. The takeaway is that the industry can start pushing on A&P schools to drive the changes. That's where you'll see the biggest shift."





Youth Access to American Jobs in Aviation Task Force

Under pressure from industry leaders, the Federal Aviation Administration established the Youth Access to American Jobs in Aviation Task Force in October 2019 to provide independent

recommendations and strategies. AAR's Goertzen and education partners Tammera L. Holmes, CEO, AeroStar Avion Institute, and Joel English, Executive Vice President of the Aviation Institute of Maintenance (AIM), participated on the task force. In September 2022, the Task Force delivered its full report and recommended the following actions:



Early awareness of AMT careers and student engagement. The FAA suggests that outreach to high school students might be too late and recommends exposing young people to aviation STEM careers in middle school.



Better access to information and resources. Training programs exist but lack awareness, particularly at the secondary education level.



More collaboration. The FAA encourages all aerospace stakeholders to build upon current models that stimulate connection between employers, schools, community organizations, labor groups, and every level of government.



Address financial hurdles. Not only is cost a barrier to entry for many careers requiring specific training and/or certification, but there are also structural limitations — including restrictive regulatory practices — that hold back innovation and limit career growth compared to other industries.¹⁶



Early access and engagement | Choose Aerospace



Before deindustrialization, it was common for secondary schools, especially those located near industrial hubs, to offer technical skills programs that prepared students for mid-skills careers that do not require a college degree. High schools, colleges, and employers worked together to provide students opportunities to earn dual credit and gain relevant work experience. The career paths were clearly mapped out and students landed jobs right out of high school. That model worked well for many years, creating a steady stream of skilled workers. But most of those programs disappeared in the late 1980s as the prevailing wisdom emphasized four years of college at the expense of skilled labor jobs.

In 2020, AAR partnered with [Choose Aerospace](#), a 501(c)(3) nonprofit, to release general aviation curriculum based upon the FAA's Airman Certification Standards into high schools as well as colleges that are interested in becoming an A&P school. Choose Aerospace is a general aviation curriculum developed by Clemson University and ARCS Aviation that is aligned with the FAA's Part 147 certification standards that went into effect last year. It was developed with a sense of urgency to unite key stakeholders to address the skills shortage and diversify the workforce.

After running a successful pilot program in the 2021–22 academic year that included nine high schools and 140 students, Choose Aerospace officially launched in the 2022–23 academic year with 189 students in 15 high schools across six states. The goal is to support career path progression for 10,000 students by 2027. That is the minimum number needed to begin reversing the mechanic shortage in a meaningful way.

Here are just a few of the benefits of Choose Aerospace:

- Takes the burden off high schools to develop their own curriculum;
- Can be implemented seamlessly with existing programs and partners;
- Is cost effective, requiring a licensing fee of only \$200 per student per year;
- 500 hours of content covers general subjects in FAA Mechanic Airman Certification Standards;
- Limited equipment and materials and teacher qualifications;
- Includes computer-based curriculum, eliminating transportation issues, with hands-on labs and activities in an instruction guide;
- Two of the Choose Aerospace classes are core credits, not electives; and
- A&P schools that partner with high schools report higher completion rates (60%) and increased career awareness in their communities.

**“Industry, education, and A&P schools.
That’s the trifecta.”**

– Crystal Maguire, Executive Director, ATEC, and Vice President, Choose Aerospace

Early access and engagement | Choose Aerospace



The industry would benefit from a national campaign to promote aviation education in high schools. Choose Aerospace is flexible and can be replicated anywhere in the U.S. in accordance with local and state policies and practices. It also underscores the impetus for aviation companies to invest in education and training programs, even in regions where they might not directly benefit.

“Whatever we do today will take two to three years before showing results,” says AAR’s Goertzen, adding, “Companies that invest in training must look to solve the issue not only for themselves but for the industry.”





Public-private partners



Public-private partners



As an aviation company working to resolve its own and the industry's workforce challenges, AAR has emerged as an industry advocate and collaborator with educational institutions and the government. Our recruiters, local human resource teams and workforce development pros work closely with schools, elected officials, airlines, workforce boards, and nonprofits that serve under-resourced communities to increase visibility of aviation careers and make education and training more accessible and affordable.

A few ways we have sought to mitigate these ongoing challenges include:

1

forming public-private partnerships with post-secondary schools and offering tuition reimbursement of up to \$15,000 and earn while you learn opportunities

2

our EAGLE Career Pathways stackable skills trajectory leading to various aviation positions, including management

3

flexible onboarding and job classifications to get new recruits experience on the hangar floor faster

4

articulation agreements with high schools, colleges, and A&P schools, both public and private, that allow students to earn dual credit toward a degree alongside FAA certification

5

a nationally recognized apprenticeship program based upon an airframe and powerplant technician career

6

AAR Fellows Program that pays the entire student tuition upon completion of their A&P program of study

7

developing the first aviation maintenance Skillbridge Pathway with Embry-Riddle Aeronautical University

Most recently, we developed a new airframe and powerplant test prep course in partnership with Rock Valley College to prepare AAR employees for the FAA knowledge exams.



Case studies



AAR Airframe MRO - Rockford, Illinois

In 2016, AAR and Rock Valley College (RVC) received a \$48 million federal grant to build a new A&P school and aircraft maintenance repair and overhaul facility at the Chicago-Rockford International Airport. In 2018, we launched our EAGLE Career Pathways program guaranteeing every student who completed the program at RVC an interview with AAR. We monitored their progress and paired students with mentors to enhance their journey through aviation. At the outset, we were able to grow enrollment in RVC's A&P program from 40 to full capacity with 170 students.

Since then, RVC has supplied a steady pool of candidates that has allowed us to meet staffing requirements to perform substantial heavy checks for a major airline customer. At this writing, there are 368 employees at our Rockford facility. It is the most diverse workforce in our network, which speaks to our intentionality around hiring workers who historically have been

"The Workforce Connection Board is pleased to have been a part of this successful education to industry partnership. The commitment of all partners to consistently and repeatedly collaborate to produce a gold standard development pipeline is remarkable and should be a model for talent pipeline development across the nation."

– Gina Caronna, Chief Executive Officer, The Workforce Connection-Rockford

underrepresented in aviation. To date, 52 percent of AAR's U.S.-based workforce are minorities and 18 percent are women.

Unique among AAR's repair stations, Rockford never stopped building capacity during the pandemic. We owe our progress to Rock Valley College, which has been a terrific partner, and a \$5.2 million workforce grant we received through the state legislature and approved by Gov. J.B. Pritzker's office to fortify curriculum and training.

The Workforce Connection in Rockford is the conduit organization for local, state, and federal funding that flows into geographical regions — in our case Northern Illinois. The grant is multifaceted. It funds community outreach and relocation expenses to support bringing in skilled talent from outside the geographic area, as well as incentives around retention strategies to keep people in Rockford. It is a multiyear strategy, because all of these things take time to mature and must work together to ensure that the growth in the region will remain robust well beyond the grant period.

Part of the grant is being used to pay for 10 instructors who train and educate our apprentice-level technicians to accelerate their learning on the floor and earn their credentials. Much of the grant focuses on redesigning curriculum to meet the new FAA Part 147 standards. In addition to paying for adjunct faculty and other resources to help in that effort, in 2022, we leveraged our relationship with SkyWest Airlines and used part of the funding to secure a working CRJ-200 aircraft. RVC is now the only A&P school in the country to have a fully operational CRJ-200 aircraft that will be used in the redesign of its curriculum.



The grant also funded support equipment for the CRJ and a turbine engine training system for students to learn on.

Chicago, Illinois

AAR's global headquarters is located in Wood Dale, Illinois, a suburb near O'Hare International Airport. Our nearest repair stations to Chicago are in Rockford, 90 minutes away, and Indianapolis, three hours away, but that did not deter us from investing in aviation maintenance curriculum and training on the South Side of Chicago.

Through a Memorandum of Understanding with [Olive-Harvey College](#), one of the City Colleges of Chicago, in 2019, AAR developed and launched a 10-week sheet metal curriculum, as well as hired and paid for an instructor. Upon completion, students can earn their sheet metal certificate. What was lacking was a pathway to an A&P school in close proximity. The nearest two programs operate at Lewis University, an hour away, and Rock Valley College, an hour and a half drive.

When AAR learned that the [Aviation Institute of Maintenance \(AIM\)](#), a private A&P school with 13 campuses in the U.S., was scouting locations around Chicago to open a campus, AAR partnered with AIM to build their 14th campus on the South Side. These institutions coming together has allowed students at Olive-Harvey College to take FAA general aviation courses sooner. Olive-Harvey's sheet metal curriculum, trimmed to nine weeks, is now credit-bearing and transfers into the A&P program at AIM seven miles away. Students can earn their FAA certificate and an associate's degree within two years. Olive-Harvey confers the associate's degree; AIM confers the A&P

certificate. From there, students can go to work or pursue a bachelor's degree in aviation management through Southern Illinois University.

In the 2021-2022 school year, Olive-Harvey College partnered with 13 Chicago Public Schools to teach AIM's FAA general curriculum to juniors and seniors in high school. Seven students participated in the pilot program. Now seniors, they are taking the remaining two general aviation courses through Olive-Harvey. Upon completion, they can matriculate to AIM to complete the A&P certification and earn their associate's degree at Olive-Harvey. There are 13 juniors enrolled in the program in its second year.

"It's one big circle and a great opportunity for South Side residents that they wouldn't have had unless they went into the military," says Tammera L. Holmes, CEO, AeroStar Avion Institute.

"We wanted to serve the people of the South Side of Chicago. We're here for a purpose and that is to be a solution."

– Joel English, Executive Vice President,
Aviation Institute of Maintenance

To date, 85 percent of the 160 students at AIM's Chicago campus are minorities and women. "The aviation industry has been heavily white and male for 120 years. It takes

creativity and determination to create access and meaningful partnership,” she said.

A&P schools: public vs. private



In spite of operating at half the capacity authorized by the FAA, A&P schools still produce the majority (67 percent) of FAA-certificated mechanics.¹⁷ Seventy-seven percent of A&P schools are associated with community colleges. Private A&P schools, like AIM, can have more costs than community colleges but must meet higher graduation and employment criteria as outlined by their accreditation. With numerous scholarships offered by A&P schools, and tuition reimbursements through corporate sponsors, the cost of attending a private school does not have to be a barrier, and so far, it hasn't. Interestingly, public institutions, which make up 77 percent of A&P programs, were hit with a 2.3 percent drop in enrollments in 2020, owing to the pandemic. Private institutions, however, have grown enrollment by 11 percent.¹⁸

“We measure success as more than funneling more people into schools. It's completing the program and taking the A&P exam to get a certificate,” Goertzen said. However, 42 percent of A&P graduates are not taking the FAA mechanic test, citing fear of testing, high test costs, and competitive pay in other industries that don't require a mechanic's certificate as factors. ATEC estimates that 30 percent of those who finish an aviation

maintenance training course end up accepting employment in another industry.

Miami, Florida

South Florida is an aviation mecca, and AAR is expanding the Choose Aerospace and Chicago models there in hopes of strengthening the pipeline in support of a new three-bay hangar facility over the next two to three years. Already, we have a unique dual enrollment model with [George T. Baker Technical College](#), adjacent to Miami International Airport, that allows students to earn their A&P certificate while in high school. We are currently working on a Memorandum of Understanding with Florida Memorial University, an HBCU, to



launch Choose Aerospace general aviation curriculum there to help establish its first maintenance program in conjunction with Opa Locka Airport.

“It’s a way to start them into maintenance without a huge capital outlay for space and equipment,” Goertzen said. “And it creates another pathway where students can go to a four-year school and get an FAA certificate at the same time.”

AAR is also working with Miami-Dade College and U.S. Aviation Academy to bring a new A&P school to Miami Executive Airport.

Female cohort

Women are significantly underrepresented in aviation and particularly across maintenance, accounting for 2.63 percent of AMTs.¹⁹ Increasing women’s representation has been a lethargic process. In 2022, 9 percent of new A&P graduates

hire a cohort of six women to be trained together at our Miami facility. We partnered with the University of Nebraska’s Aviation Institute to conduct a case study to measure the impact of the group training on recruitment and retention. Researcher Rebecca Lutte concluded that a group hire positively impacts both, though, ultimately, our efforts were challenged by the appeal of other industries and the high cost of living in the region.

Nonprofit partners

AAR is also leveraging relationships with nonprofit organizations serving disadvantaged communities. This fall, we are releasing the Choose Aerospace curriculum to two nonprofits in Miami:



Overtown Youth Center, a youth development program that provides comprehensive services to at-risk youth and young adults ages 5–25, and their families, founded in 2003 by NBA Hall of Famer Alonzo Mourning and real estate developer Martin Z. Margulies.



Pace Center for Girls, which provides life skills, counseling, academic, and career support for girls in middle and high school.

were women, a hopeful sign.²⁰ Realizing that employers must be intentional around inclusion, in 2020–21, AAR used part of a \$400,000 workforce grant from the [Lumina Foundation](#), a postsecondary advocacy organization based in Indianapolis, to

We estimate that these combined efforts – a new A&P school, our work with the HBCU, nonprofits and George T. Baker – have the potential to add 500 students.



Veterans

Veterans



After serving their country, discharged military veterans are looking for civilian careers where they can apply their skills and make a smooth transition to the next chapter in their lives. Military veterans make up 19 percent of AAR's U.S.-based workforce, with 40 percent of them certificated A&Ps. Skillbridge has been a highly successful program at AAR. We partner with Embry-Riddle Aeronautical University to provide an intensive nine-week aviation maintenance Skillbridge course that trains transitioning military veterans and eligible military spouses in aviation maintenance. Launched in August 2019 with the United States Marine Corps, we have graduated 520 service members with 90 percent receiving offers of employment.

Former military personnel also work with AAR through the company's Launch Aviation program. Veterans work at AAR through a contract agency for three months, after which we hire them directly. The program quickly starts former military personnel on their civilian career journey. We invest in outreach and don't wait for veterans to come find us. AAR maintains a presence on seven of the largest military installations in the nation, working closely with the bases' retirement centers to set up interview paths with people as they transition out of the military.

AAR's commitment to veterans earned the company the 2023 Military Friendly® Employer Gold designation, the 2023 Military Friendly® Spouse Employer designation, the Military Friendly® Top 10 Brand and Military Friendly® Top 10 Supplier Diversity Program. Institutions earning the Military Friendly® Employer

designations were evaluated using both public data sources and responses from a proprietary survey. Over a thousand companies participated in the 2023 Military Friendly® survey.



All of these programs flow into EAGLE Career Pathways, beginning at support technician and moving along the pathway to Level 1 technician to roles in management, operations, quality control, and safety tracks, or beyond AAR.



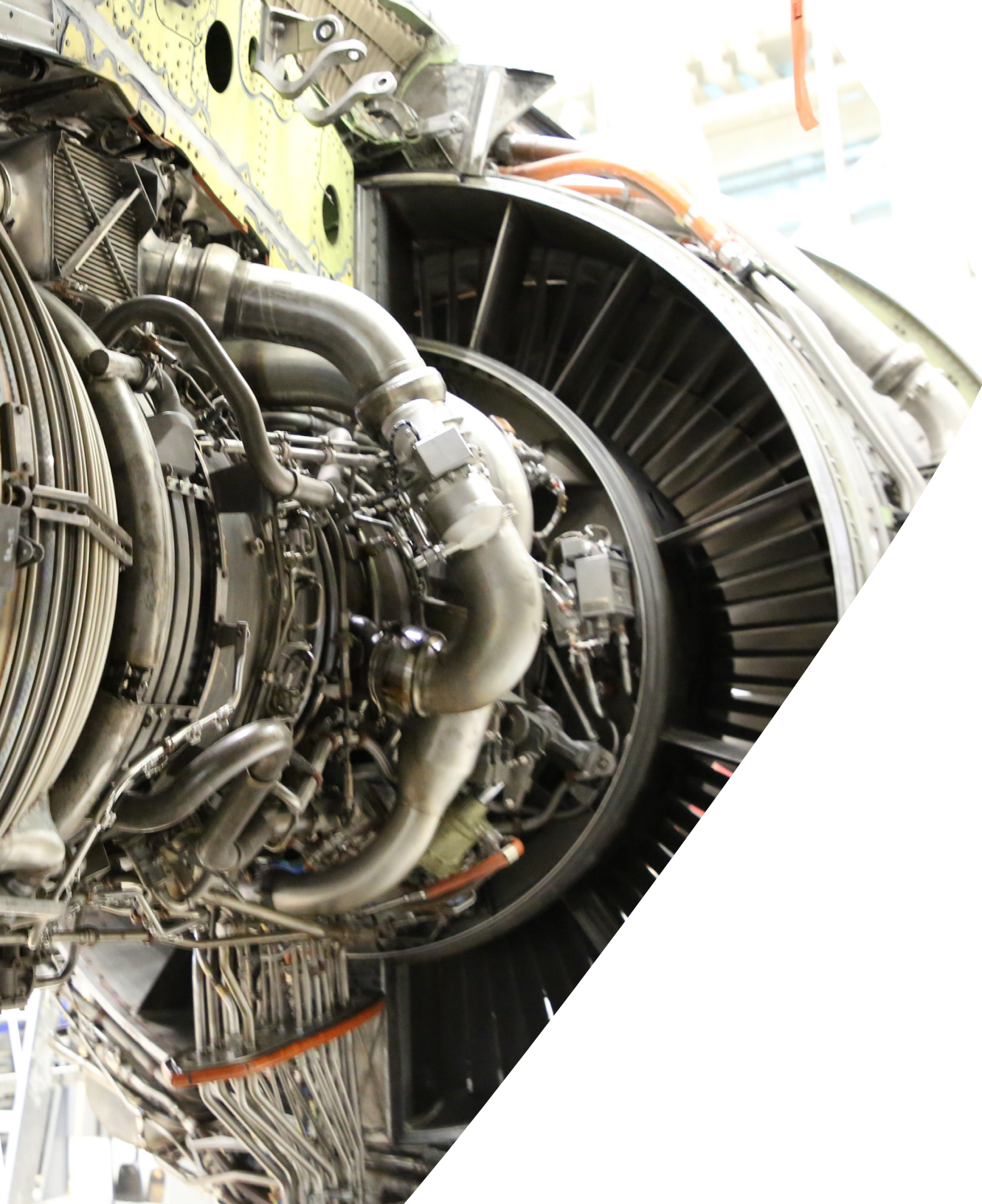
AAR's nationally recognized apprenticeship

AAR's nationally recognized apprenticeship



Another EAGLE Pathway opportunity inside of AAR is through our nationally recognized apprenticeship program based upon an airframe and powerplant technician career. This program was certified by the U.S. Department of Labor in February 2021 and allows AAR to recruit apprentices who are not currently attending college or an A&P school, graduates of A&P schools, and veterans completing Skillbridge. It allows for steady pay increases as employees move through the program. The great thing about apprenticeship is the value it creates for the organization, as well as for our employees. Veterans are allowed to use their housing allowance for the duration of our two-and-a-half-year program. Upon completion, employees receive a graduation certificate issued by the U.S. Department of Labor.





Recommendations

There are numerous ways the aviation industry can address its greatest workforce challenges through collaboration, innovation, and creative funding. The following are key issues facing the industry and our recommendations on how to begin solving them.



Lack of awareness of aviation careers

Industry, government, and education should work together to launch a national campaign to raise awareness of aviation careers that are rarely talked about in the public sphere.



Difficulty hiring faculty

Recruit retired AMTs as instructors. Build training programs to teach people with industry experience how to instruct others. This could be done by providing resources to build a training module on the art of teaching in an FAA-certificated school.



Redesigning curriculum to meet new FAA Part 147 standards

A&P schools should begin addressing elements of the certification standard and seek guidance from industry partners to align the curriculum to current demands.



Low A&P school enrollment

Create robust high school feeder programs leveraging Choose Aerospace starting in the junior year. These types of programs are a natural marketing arm of the school and can, therefore, grow organically. A&Ps with these types of partnerships report low attrition and increased career awareness in their communities.²¹



New A&Ps aren't keeping pace with demand

Update the FAA regulations to allow AMT candidates who complete a general aviation curriculum, like Choose Aerospace, in high school to take the FAA general exam to become certified. Under the current regulations, for instance, a candidate seeking a pilot's certification is eligible to take the exam upon completion of the general aviation curriculum, but aspiring mechanics are not. Completing the exam early would expedite the process and lead to increased certifications across the aviation industry.



Limitations on recruiting talent globally

Lawmakers must pass common sense immigration policies that allow aviation companies to recruit talent from abroad to meet demand and keep airplanes flying safely. Similar to aircraft pilot and crew shortages, mechanics shortages have the potential to cause flight delays and price hikes if airlines are forced to take planes out of service.



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