



# THE SKILLS GAP

*A Demand  
for Aviation  
Maintenance  
Technicians*



# UNIVERSITY FOR ALL?

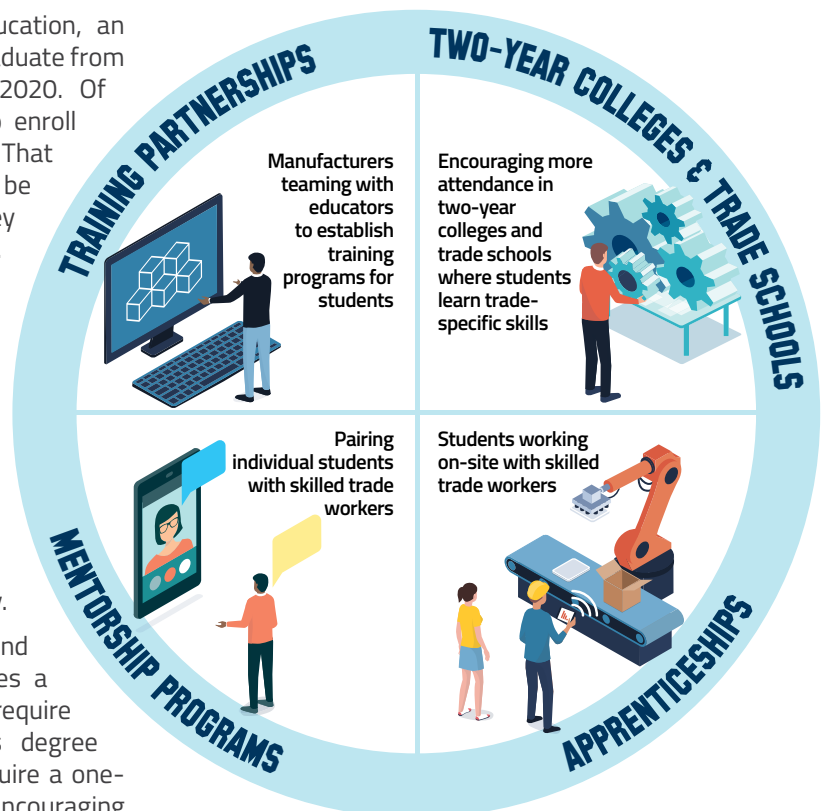
## The Hands-on Decision.



*In today's economy, having specialized hands-on skills can be more valuable than getting a degree in a major with little demand.*

According to the Department of Education, an estimated 3.7 million students will graduate from U.S. high schools between 2019 and 2020. Of those students, roughly 69% will choose to enroll in higher education after they graduate<sup>1</sup>. That means over 2,553,000 students will soon be making the crucial decision of what step they should take next on their educational path. Over the last two to three generations, the “university-for-all” philosophy has formed its roots in the classes and guidance offices of high schools. This ideology has saturated the job market with four-year educated job seekers, who are now finding that their degree does not necessarily mean preparation for employment. It also means that many students have chosen to pursue a degree that does not necessarily have a demand in the economy we have today.

The ratio of jobs in our current economy stand at 1:2:7. For every occupation that requires a master's degree or higher, two positions require a university degree.<sup>2</sup> For each master's degree position available, there are seven that require a one-year certificate or two year degree. While encouraging students towards a university post-graduation is done



Source: [adeccousa.com/employers/resources/skilled-trades-in-demand](http://adeccousa.com/employers/resources/skilled-trades-in-demand)



with the best intentions, it does not fit in with the current demands of the job market. In order to gain a competitive advantage in the current economy, students must not only have academic knowledge, but must also have technical ability.

Adecco USA<sup>3</sup> estimates that 31 million trade jobs will be left vacant by 2020. As the Baby Boomer generation readies itself for retirement, younger generations are searching for employment outside of vocational careers. In order to fill that gap, outreach must start early and begin encouraging students to investigate alternatives to the traditional four-year education. Partnerships between manufacturers and educators allow for the establishment of training programs. Mentorship programs pair students with skilled trade workers. Apprenticeships are also excellent options to generate a push towards skilled trade. These opportunities alone, however,

are few and far between for graduating seniors. They offer the opportunity for technical ability, but lack emphasis on the academic knowledge. A technical college balances technical skill with theoretical understanding behind those skills. This combination, in conjunction with the regulations of accreditors and availability of resources, makes technical education an attainable and beneficial choice for students.

As the demands in the workforce change, so must our focus on the types of educational opportunities we are presenting to students. Maintaining the “university-for-all” mentality, while beneficial to some, can often mean students find themselves in a great amount of debt pursuing a degree they will not necessarily use. Adhering to the shift in needs of the industry, we must instead adopt a “post-secondary training for all” mentality.<sup>2</sup>

## JOB RATIO BREAKDOWN IN OUR ECONOMY

1 : 2 : 7

Masters Degree or More

University Degree

One Year Certificate or Two Year Degree



**This Ratio is fundamental to ALL Industries.**

**It was the same in 1950, the same in 1990 & will be the same in 2030.**

<sup>1</sup> [nces.ed.gov/fastfacts/display.asp?id=372](https://nces.ed.gov/fastfacts/display.asp?id=372)

[theclassroom.com/percentage-high-school-students-attend-college-after-graduation-1423.html](https://theclassroom.com/percentage-high-school-students-attend-college-after-graduation-1423.html)

<sup>2</sup> Substance Media Inc. & Citrus College: <https://www.youtube.com/watch?v=zs6nQpVl164>

<sup>3</sup> [adeccousa.com/employers/resources/skilled-trades-in-demand](https://adeccousa.com/employers/resources/skilled-trades-in-demand)

### The Hands-on Decision

Since 1929, the Pittsburgh Institute of Aeronautics has focused on combining the theoretical understanding of a trade with the hands-on skills necessary for application. Offering Associate's Degrees and Certifications in the fields of Aviation Maintenance and Aviation Electronics, PIA addresses the need for technically skilled workers. Not only does PIA seek to provide students with the education needed for the field of aviation, but has worked to connect students directly with employers through training partnerships and career services. While the curriculum is based on aviation industry practices, the skills are transferable into a diverse set of related occupations.

PIA is accredited by the Accrediting Commission of Career Schools and Colleges, requiring that our programs and facilities meet their standards. In addition to the degrees, diplomas, and certificates awarded to graduates by PIA, students are also able to test for their Airframe & Powerplant Certification or General Radiotelephone Operator License at the completion of their program. The combination of an educational degree and an industry certification makes pursuit of higher education at PIA a unique opportunity for students.





# *Global Demand*

*The aviation industry, like many other industries, has not been immune to the growing skills gap. Aviation across the globe is approaching an almost crisis-level shortage of technicians and pilots entering the field, leaving the majority of the existing workforce close to retirement age.*

According to the Aviation Technician Education Council's (ATEC) annual Pipeline Report, about 30% of the aviation maintenance workforce is at or near retirement age, while new entrants into field make up only 2% of the AMT population annually. This decline in the workforce comes at a bad time, as the need for technically trained employees is steadily growing. An Industry Week survey conducted by Aviation Technical Services found that 39% of aerospace companies believe the skilled labor shortage is having an "extreme" effect on the growth of their business<sup>1</sup>.

One positive trend in the aviation maintenance industry is that more women have been entering the aviation maintenance workforce. The FAA airman database lists 286,000 certificated aviation mechanics. Females now make up 2.3% of the AMT workforce, which is up from 1.7% in 2001. The field is still male-dominated, but is moving in the right direction.

Many aviation companies are trying to get ahead of this employment gap and are keeping a close eye on the



market. According to Boeing's '2019 Pilot & Technician Outlook,' about 769,000 new skilled mechanical and electronic technicians will be needed in the aviation workforce between 2019 and 2038, while 804,000 new pilots will be needed in the same timeframe<sup>2</sup>.

Aviation is not the only industry that is feeling the effects of the skills gap. One major issue facing the skilled trades is one of perception. Unfortunately, millennials and younger generations have been taught that a 4-year degree is the only way to success, leaving the skilled trades seeming less glamorous and desirable. This trend has become known as the "glamour gap."

If this perception is going to change, it has to start before career planning and postsecondary education decisions are made by students and their families. The millennial generation had been told from a young age that success starts with a college education. With student loan debt being at record highs, the 'conventional wisdom' is not accurate for everyone. If technical training were held with the same prestige as a four-year degree, paths to success would have been opened for millions of students who are now faced with student loan debt and lackluster employment opportunities.

Source: Aerospace Skills Gap, <http://bit.ly/Aerospace-Skills-Gap>

## Boeing 2019 Long-Term Market Outlook

New Aviation Maintenance Technicians  
will be needed World Wide by 2039.<sup>2</sup>

<sup>2</sup> The Boeing Company's 2019-38 Pilot and Technician Outlook projection.

Excerpt from **Forbes Magazine:**

## The Tiny Trade-School Ivy Outperforming Top Four-Year Colleges

This fall, approximately 4 million high school students in the U.S. will enter their senior year. Some are already thinking about what comes next, discussing their college wish lists with friends and counselors, and planning out campus visits with parents. Most will undoubtedly be pushed toward attending four-year schools, where bachelor's degree will supposedly give each student the best chance at finding a fulfilling, high-paying career.

Four-year schools are good fits for many students, but the notion that they're the best one for all students is downright wrong. As high-tech machines continue to disrupt how things are made, and as workforces age in many technical fields, there are vital jobs opening up that academics just can't fill. Highly-skilled and well-trained workers are needed, and the country is home to top-notch technical schools ready to fill that need.



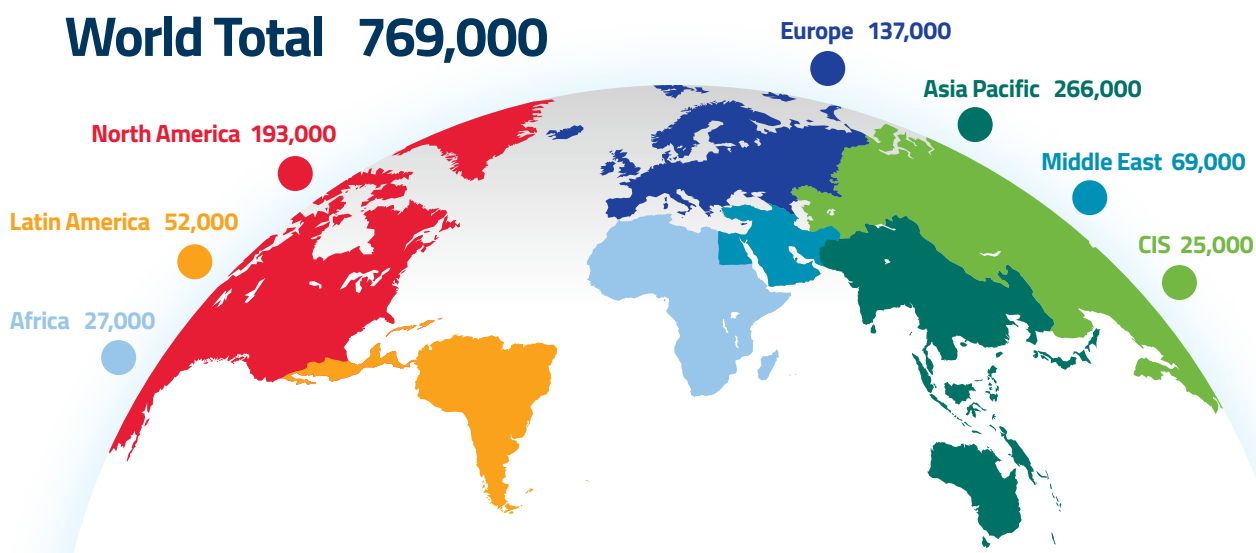
For the second year, Forbes is ranking the nation's Top Two-Year Trade Schools, a list of technical and career colleges with high-earning alumni, stand-out graduation and retention rates, and respectable debt repayment scores. The 25 schools on the list cover a myriad of careers that need workers — and in high-paying, high-growth areas, such as aircraft maintenance, funeral services, dental hygiene and drafting.

Three schools are in the Pittsburgh metro area, including No. 1 Pittsburgh Institute of Aeronautics. PIA, a private aircraft maintenance school with ties to Orville Wright himself, plays ball in an industry where the jobs not only are high-paying, but are in desperate need. Thirty percent of aircraft maintenance technicians nationwide have reached or are nearing retirement age, and only 2% of the workforce is new.

"You would have to try to not have a job offer," PIA student Sam Karol says of his job prospects after graduation.



Suzanne Markle is the president and CEO of the Pittsburgh Institute of Aeronautics, the Harvard of trade schools. JAMEL TOPPIN



# WHY *do we* GLAMORIZE *expensive* COLLEGES?

by Mike Rowe

I can think of nine magazines off the top of my head who every year will rank the top colleges.

None of them ever include a trade school.

That's where the pressure starts.

**More students than ever are opting for 4-year college degrees.**

*"College enrollment among high-school grads..."*  
– The Wall Street Journal (2017)

**But trade jobs account for 54% of the labor market.**

*"Wanted: Factory Workers, Degree Required."*  
– The New York Times (2017)

And what comes out the other end is exactly where we are right now.

As a generation struggling to bridge that gap between whatever it is they learned and whatever opportunities exist.

**Over the next 10 years, 3.5 million manufacturing jobs will need to be filled.**

**But 2 million of those will go unfilled due to the skills gap.**

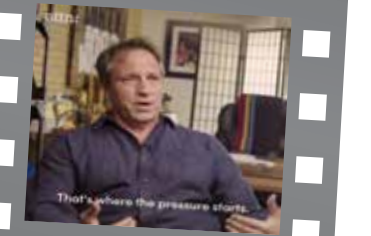
*"The Skills Gap In U.S..."*  
– The Manufacturing Institute And Deloitte (2015)

The jobs that exist right now don't require massive debt.

They don't require four years of liberal arts study.

They require the willingness to learn a skill that's actually in demand.

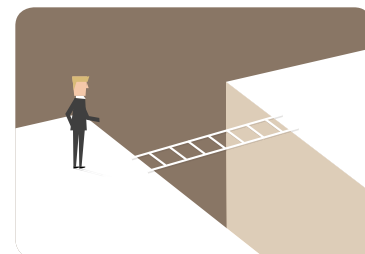
Source: attn: Facebook video, 21 Million Views  
<https://www.facebook.com/attn/videos/1388355794533209/>





## What can be done to address the skills gap?

The impending, and at times already apparent, shortage of skilled workers in the workforce needs to be addressed. Encouraging post-secondary education for students is important in developing an educated and skilled workforce for the coming years. Some students will naturally fit into the four-year university setting, while others will find success in a hands-on, skill-oriented trade. Ultimately the student is responsible for making the decision regarding their education. It is up to us, as educators, to ensure that they are knowledgeable about all the options available to them.



## It's never too early to start thinking about the future.

It is important to start educating students about their options early. The sooner students begin pondering their futures, the more time they have to explore opportunities that may interest them. PIA attends events for students of all ages, encouraging students to begin exploring their interest in flight and aircraft. With tools like our Career Readiness Quiz (online only), students are able to ask themselves questions about important factors of their education and whether or not they fall in line with their goals.



## Education about Education

Education and awareness of the types of programs available to students is valuable. The more knowledge that a guidance counselor, instructor, or parent has regarding the quality and type of education a student can obtain at a trade school can have a significant impact on a student's decision to attend one. PIA is proud to offer educational tours and presentations to groups of student influencers, to give them a full understanding of exactly what PIA has to offer. PIA is able to bring this information directly into a high school classroom, offering exciting and interactive presentations by our high school representatives.



## Student visits

Ultimately, giving the students the opportunity to fully explore available careers is most important. Through a number of different venues, PIA is committed to helping students learn about the value of a hands-on education. PIA is able to offer individual tours to students and their families, as well as group tours for a large number of interested students. We are happy to work directly with large groups to customize tours within our abilities. We also offer open house events at all four of our campuses, designed to give an overview of the programs on a Saturday.







## Aviation Maintenance Technology Program (AMT)

PIA's flagship **Aviation Maintenance Technology** program has built a reputation in the industry of training quality aircraft mechanics for more than 90 years. This program provides students with the skills to test for the respected **FAA Airframe and Powerplant Certification**, the "golden ticket" to a career in aviation maintenance. And with 30% of AMTs near or at retirement age, **positions are in demand!**

Source: ATEC 2018 Pipeline Report, <http://bit.ly/amt-report>

### Program Options/Locations

#### Associate in Specialized Technology (AST) Degree

Length ..... 21 Months

Campus Location(s) ..... Pittsburgh, PA

#### Diploma/Certificate<sup>1</sup>

Length ..... 16 Months

Campus Location(s) ..... Hagerstown, MD

Myrtle Beach, SC

Youngstown, OH

<sup>1</sup>16 month programs are approved to award a diploma in MD & OH, and a certificate in SC.

## What Do Aviation Maintenance Technicians Do?

Aviation maintenance technicians check aircraft equipment on a regular basis. They complete inspections, perform scheduled maintenance, and make any necessary repairs according to FAA regulations, with knowledge of these areas and more:

- Turbine Engines
- Reciprocating Engines
- Metallic Structures
- Ignition Systems
- Hydraulics & Pneumatics
- Composite Materials
- Welding
- Aircraft Weight & Balance

## FAA Airframe & Powerplant Certification

All mechanical work done on aircraft must be inspected or supervised by an FAA Airframe and Powerplant (A&P) Certified Technician. Their work ensures the safety of millions of flight passengers every year.

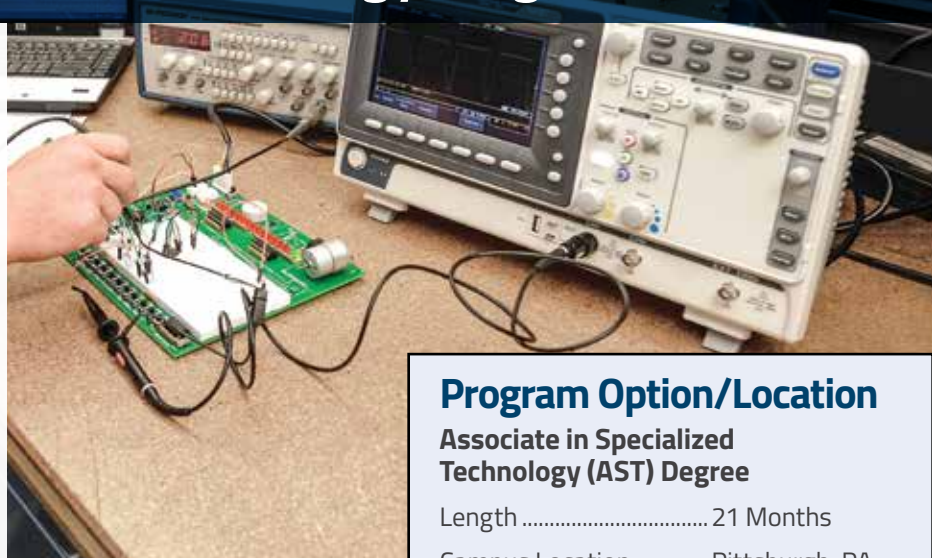






## Aviation Electronics Technology Program (AET)

Since 1980, PIA has been one of a select group of schools in the nation offering a program specifically designed to teach the **repair and maintenance of the complex avionics systems** that are used within an aircraft. Our Aviation Electronics Technology program goes beyond the scope of just identifying and replacing faulty equipment. Graduates have **advanced component-level troubleshooting skills** that can save employers a significant amount of money by repairing, not just replacing the equipment.



### Program Option/Location

**Associate in Specialized Technology (AST) Degree**

Length ..... 21 Months

Campus Location..... Pittsburgh, PA

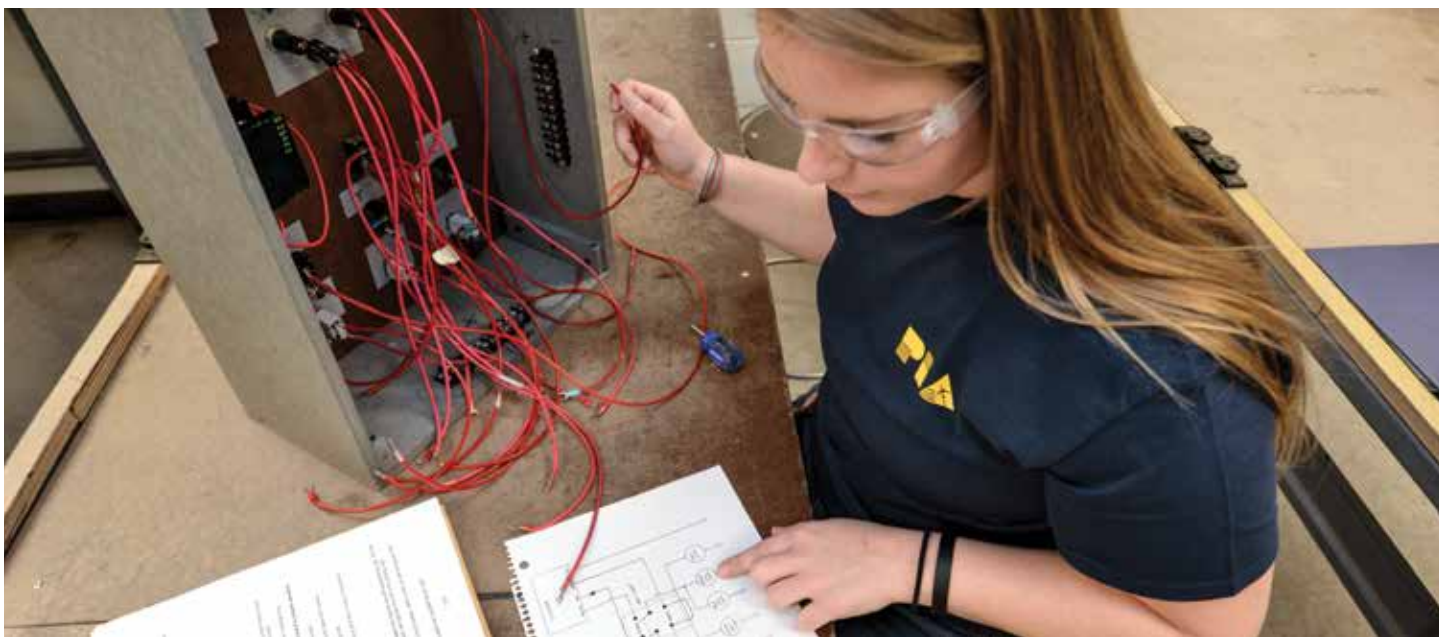
### What Do Aviation Electronics Technicians Do?

Aviation electronics, otherwise known as avionics, are the brains of aircraft. Aviation electronics technicians are masters of identifying and repairing issues with communications systems, navigation equipment, display screens, and more. Our AET program helps students acquire the FCC General Radiotelephone Operator License (GROL), with coursework covering these and other systems:

- Amplifiers
- Microprocessors
- Communications Transceivers
- Microwave Systems
- Radar Equipment
- Navigation Systems

### FCC General Radiotelephone Operator License

A General Radiotelephone Operator License (GROL) is required to adjust, maintain, or internally repair FCC licensed radiotelephone transmitters in the aviation, maritime, and international fixed public radio services. It is indispensable for a future in aviation electronics.





# PIA ALUMNI & EMPLOYERS

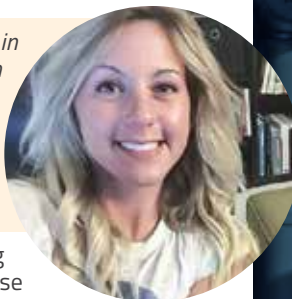
## It's like a Dream Come True

**Kate Folmar – Pittsburgh Campus, PA**

Program..... Aviation Maintenance Technology (AMT)  
Length..... 21 Months  
Employment ..... NASA  
Position..... Engineering Technician

*"When I got there and saw actual planes in the hangar, both my dad and I were blown away. There was a paint booth, a sheet metal shop, an electronics shop, engines everywhere – you name it. With my mechanics background, I knew this was perfect for me."*

A month before graduating and earning her FAA Airframe and Powerplant license in 2011, Kate accepted a job with Pratt & Whitney, a company she had her sights set on. She now works at NASA, where her work is primarily focused on the International Space Station. She is also involved with NASA's Space Launch System.



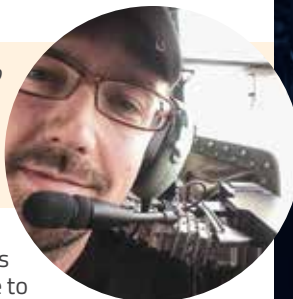
## Making PIA Skills Work

**Matt Trowbridge – Youngstown Branch Campus, OH**

Program..... Aviation Maintenance Technology (AMT)  
Length..... 16 Months  
Employment ..... Constant Aviation  
Position..... AMT Supervisor

*"As a supervisor, you are the one who finds the job and sets the priorities. A lot more planning and forethought goes into it. The [technicians] come to me looking for their work."*

A graduate of Youngstown State, Trowbridge decided to switch careers at 30 to follow through with his desire to work in aviation. At Constant, Trowbridge worked his way up to a supervisory position. In his spare time, Trowbridge volunteers at Liberty Aviation Museum, where he gets to work on museum pieces – including a B25 from WWII.



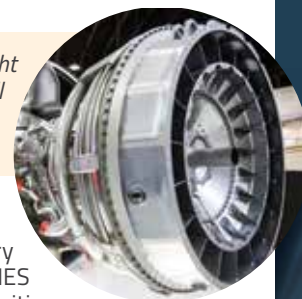
## A Passion for Aviation

**DJ Parness – Myrtle Beach Branch Campus, SC**

Program..... Aviation Maintenance Technology (AMT)  
Length..... 16 Months  
Employment ..... Sierra Nevada Corporation  
Position..... A&P Mechanic II

*"I've always loved the concept of flight and airplanes. I enjoyed taking small electronics apart growing up...anything I could stick a screwdriver to."*

His love of being hands-on and in the shop led DJ to complete his Airframe and Powerplant Certification in January of 2016. DJ received offers from AMES and Express Jet, but DJ settled on a position from the Sierra Nevada Corporation in Florida. With 19 locations worldwide and growing, the benefits and opportunities ultimately drew him in.



## A New Day Every Day

**Alex Hathaway – Hagerstown Branch Campus, MD**

Program..... Aviation Maintenance Technology (AMT)  
Length..... 16 Months  
Employment ..... AvDyne AeroServices  
Position..... Aircraft Maintenance Technician

*"I learn something new every day, and I don't see that changing. The joy is, because I do line maintenance, it's not for a specific airline and I get to see everything here. I could go from an Airbus to a corporate or private jet in any given day. It's all fun and challenging. It makes it a lot easier to come to work every day not knowing what you're going to get into that day. Some days I come in and I go from jet to jet. It keeps me on my toes."*

Today, Alex is an Aircraft Maintenance Technician with AvDyne AeroServices at BWI Airport in Baltimore, Maryland. The job is perfect for Alex, since he is a self-proclaimed "walk around, on the move, kind of guy." It's a high paced environment with a wide variety of tasks to accomplish each day.





**||** *If I could tell any parent, any student, anybody that's on the street, on what to do... if I can go back and re-engineer my career, this is what I would want to do!*

— Darrel Stern, National Recruiting Talent Acquisition Manager



**||** *Companies are going to struggle to maintain growth. Maybe our culture needs to shift and make it acceptable to come out of high school and go into a technical education.*

— Jeff Richards, Operations Manager



**||** *We see a trend in retirement of technicians and now lean more towards training our own or relying on A&P schools. We keep coming back to PIA because the quality of graduates is very high.*

— Reed Blackwell, Senior Technical Recruiter



**||** *It's very difficult to fill these positions at the speed we need them filled at. The [graduates] we get from PIA come out with a great attitude and they hit the ground running.*

— Mike Myers, Base Manager at Harrisburg International Airport





## FOR THE *Student, Employer AND Future*

PIA's **Career Services Department** takes a hands-on approach to helping graduates launch their career. They will meet one-on-one with a career services coordinator on a regular basis. This focused attention will allow us to learn about their goals, so we can give them the best tools for success.

And we don't stop there. We keep track of industry trends, such as salary and wage fluctuations, to make sure graduates have the best understanding of the market and what they can expect. We're continuously networking and expanding our efforts to serve our students and alumni with the most relevant and up-to-date information available. We're always looking for what's on the horizon!

- ▶ Job Opportunities
- ▶ Career Decision Assistance
- ▶ Career Fairs
- ▶ Resume Writing
- ▶ On-Campus Recruiting
- ▶ Interview Skills



## Help Educate Your Students About The Critical Demand For Aviation Technicians

*Refer PIA to your colleagues for an engaging classroom presentation*

### Pittsburgh, PA Campus

- Bob Allison ..... rallison@pia.edu ..... 412.346.2128
- Dino Cicconi ..... dcicconi@pia.edu ..... 412.346.2127
- Brandon Weiss ..... bweiss@pia.edu ..... 412.346.2131

### Hagerstown, MD Campus

- Chris Malott ..... cmalott@pia.edu ..... 240.347.4805 x2340
- Stephanie Ostrowski ..... sostrowski@pia.edu ..... 412.346.2119

### Myrtle Beach, SC Campus

- Jason Wolfe ..... jwolfe@pia.edu ..... 843.238.2700 x2412

### Youngstown, OH Campus

- Laura Yankush ..... lyankush@pia.edu ..... 330.399.9992 x2203



**School for Aviation Maintenance & Electronics**  
A Non-Profit Educational Institution

