Each year the Aviation Technician Education Council (ATEC) compiles information about Federal Aviation Administration (FAA) airframe and powerplant (A&P) mechanic certificate holders, the educational institutions that prepare the majority of those individuals for careers in aviation maintenance, and the companies that employ maintenance professionals.

The purpose of this year’s report is to illustrate the certificated aviation maintenance technician (AMT) career path, identify demographics and trends for the current and entering workforce, and detect opportunities to meet the growing workforce demand.

The report’s key conclusions:

- Mechanics are retiring faster than they are being replaced. New entrants make up 2% of the population annually, while 30% of the workforce is at or near retirement age. Using ATEC’s model, the mechanic population is projected to decrease 5% in the next 15 years.

- Schools have the capacity to double production of A&P candidates. While institutions are ramping up recruitment activities and expect enrollment to increase, there is significant opportunity for industry employers to help define career paths and attract more students into the pipeline.

- Aviation must increase its focus on retaining A&P candidates. Twenty percent of candidates pursue careers outside of the industry and only 60% elect to take the FAA mechanic certification test.

- While the percentage of female A&Ps is increasing, it remains low, at less than 3%. This presents an opportunity to help address a looming shortage.

The survey’s results and related conclusions help guide council activities and priorities, support industry recruitment programs and initiatives, and shape legislative and regulatory efforts that will benefit aviation maintenance.
Aviation Maintenance Technician School (AMTS) data was gathered through an ATEC-conducted survey of educational institutions with airframe and powerplant (A&P) programs certificated by the FAA through Title 14 Code of Federal Regulation part 147.

While all schools with technical programs were eligible to participate in the AMTS survey, most questions focused on A&P graduate demographics.

In total, 61% of all FAA-certificated AMTS participated in the questionnaire; a list of contributing institutions is included in Appendix 1. Seventy-five percent of respondents submitted complete answers subsequently used in this report.

Additional data was gathered from the National Center for Education Statistics College Navigator and FAA sources including the AMTS database, US Civil Airmen Statistics, Regional Active Airman Tables, FAA data downloads and the airman certification database.

The information in this report is based on data available as of Nov. 15, 2017.
AMTS DEMOGRAPHICS

There are 171 active AMTS. Total current enrollments for all A&P programs is 17,791. With an FAA-approved system capacity of 34,284, the current AMTS load factor is 51%.

While A&P program capacity increased by 2% in the last 18 months, enrollment also decreased by 2%.

The vast majority of educational institutions with A&P programs—nearly 80%—are public institutions. But while private schools make up only 21% of the population, they enroll nearly 40% of all A&P students.
A few schools dominate overall enrollment. Nearly 40% of all A&P students are enrolled at the 10 largest institutions. The AMTS community is therefore composed mostly of smaller institutions, with half of AMTS reporting fewer than 50 enrolled students.

Fifty percent of A&P students reside in New York, Florida, Texas or California.

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*Source: FAA AMTS Database*
To meet the growing demand for specialized services, nearly half of AMTS provide stand-alone, aviation-related programs outside the A&P, including avionics, unmanned aircraft systems, welding, sheet metal, and composites.

The fastest-growing non-A&P programs over the last two years were avionics and unmanned aircraft systems.

Q1 What stand-alone, aviation-related program(s) does the institution offer?

SOURCE: ATEC AMTS SURVEY
The average graduation rate for an A&P student is 78%. Twenty-four percent of AMTS graduates are veterans, 35% were in high school or attended high school within 12 months of enrollment, and 8% are female. Of those eligible for placement, 71% had a job upon graduation.

New AMTs are willing to relocate for their careers, nearly 40% took a job outside the school’s geographic location.

The workforce bleed is real. AMTS respondents estimate that 20% of graduates pursue careers outside of aviation, and only 60% elect to take the FAA test for A&P mechanic certification.
The FAA airman database includes 285,782 certificated mechanics. Females make up 2.3% of the certificate mechanic workforce. This figure has steadily increased from 1.7 percent in 2001.

The agency does not track whether certificated holders are actively performing maintenance, or working within the U.S. (though we do know that 8% of active mechanics applied for a certificate using an international address). Certificated mechanics are removed from the airman database only when the agency receives notification of death, the certificate is suspended or revoked, or the mechanic turns 90 years of age. Therefore, the number of mechanics actively working in the industry is likely significantly lower than the number derived from the data source.

Up until 2015, the total number of certificated mechanics steadily increased. The number dropped nearly 20% in 2016 after the agency removed all mechanics that had not applied for the required plastic certificate (see § 65.15(d)). Thus, the 2016 number is likely a more accurate reflection of the current population (though it still does not account for retirees or those working outside the industry or country).

![Mechanic Certificates](source: FAA US Civil Airman Statistics)
While the airman database is an important source of information for identifying and analyzing trends, a more accurate representation of the current workforce may be derived from air operator and repair station employee reports.

Around 41% of all individuals with an FAA mechanic certificate are employed by repair stations, air carriers\(^1\), general aviation\(^2\) and AMTS. (The other half is presumably employed by other industry segments such as design and manufacturing, works outside of the aviation industry, or is otherwise inactive.) Repair stations employ half of all certificated mechanics working in these segments.

Certificated mechanics make up 81% of the air operators maintenance workforce, and 21% of the repair station workforce.

For entry-level positions, AMTS report that the top aviation employers are repair stations, followed closely by regional airlines.
Of particular concern is the age demographics of the current workforce. The average age of an FAA mechanic is 51, with 27% of the mechanic population age 64 and above.

In contrast, year-over-year, newly-minted mechanics make up only 2% of the entire population. While the distribution of new entrants has held steady in the last decade—around 60% are sourced from AMTS—the total number of original certificates is gradually trending down. In the last two years alone, new entrants fell from 7,216 to 5,856, a 19% decline.

The typical starting average hourly wage for an AMTS alumna is $19.29 per hour. The Bureau of Labor Statistics reports median pay for all aircraft mechanics and technicians (both certificated and non-certificated) at $28.98 per hour.
Sixty percent of AMTS graduates take the FAA mechanic test. Those that pass the test make up 60% of new AMTs. The other 40% qualify for a mechanic certificate based on military or civilian experience.

Seventy eight percent of AMTS students graduate, of those, 20% are employed outside aviation.

The current AMTS load factor (authorized vs. current enrollment) is 51%. The AMTS infrastructure can accommodate 16,493 more enrollments.
Using the ten-year average of 6,216 new entrants annually, and assuming an average retirement age of 64, new A&Ps will not keep pace with retirements.

Using this model, the population of A&Ps is expected to decrease 5% by the year 2032.

But industry needs more than just replacements. Recent workforce studies have focused on the number of new technicians needed to maintain a growing fleet. Boeing predicts that commercial aviation alone will require 648,000 new technicians by 2036, with 18% of that demand, or 118,000, coming from North America. Airbus estimates that the commercial fleet will require more than a half million new technicians by 2036, including 78,000 in North America.

And Oliver Wyman forecasts that by 2027 U.S. demand for maintenance technicians will outstrip supply by 9%.
The vast majority of AMTS survey respondents (83%) expect their institution’s enrollment to increase—the optimism has markedly increased since the 2015 survey, when only 55% of respondents shared that same expectation.

When asked about the driver for enrollment predictions, the majority of respondents pointed to changing market demands and increases in student-recruitment activities, closely followed by increasing salaries.

When asked about the most concerning threat to their technical programs, AMTS pointed—for the second straight year—to unavailable or inaccessible government funding, followed closely by limited access to training equipment. Coming in as the third and fourth greatest threats respectively were burdensome FAA regulatory requirements and public perception.

**CHALLENGES AND OPPORTUNITIES**

**Q18** Whether you expect your enrollment to increase or decrease, what drives the predicted change?

**Q21** How concerning are the following threats to your institution?

_Source: ATEC AMTS Survey_
CHALLENGES AND OPPORTUNITIES

The loss of aviation program graduates to other technical fields—an estimated one in five graduates obtain employment outside of aviation—is a key challenge facing the aviation maintenance community.

Further indication that A&P graduates are either forfeiting or delaying careers in aviation maintenance is the mind-boggling stat that only 60% of A&P candidates—those already in the aviation career pipeline—do not pursue a mechanic certificate.

One way AMTS and industry are starting to combat these challenges—and to capitalize on the expectation that enrollments will increase—is to better define career paths for students through innovative partnerships.

Indeed, when asked about formal cooperative agreements with employers, 87% of AMTS respondents said they had relationships with industry companies, with repair station partnerships leading the way.

Q2 What segments of the industry does your institution have cooperative agreement(s) with (e.g., internship/apprenticeship programs, part-time job opportunities for students, paid tuition, guaranteed interview, etc.)?

SOURCE: ATEC AMTS SURVEY
Activities and Initiatives

Efforts to grow the pipeline—by size and capacity—are underway.

Through enhanced communications, networking events and strategic partnerships, ATEC is connecting more schools with employers. For instance, in 2016 ATEC held its first employer expo during its annual conference, where recruiters and workforce-development executives met with AMTS instructors and administrators to forge new relationships and strategic partnerships. The networking event will reemerge at the 2017 annual conference.

ATEC is also ramping up efforts to boost AMTS enrollment through AMT branding efforts and enhanced industry-education and recruitment activities at the K-12 level.

For more information on ATEC’s initiatives and to learn how you can participate, visit http://www.atec-amt.org/workforce.

About ATEC
ATEC is a partnership of aviation maintenance training schools and employers. The council is dedicated to promoting and supporting technician education through its communications, advocacy programs and networking events.
APPENDIX 1: CONTRIBUTING AMTS

Alabama Aviation Center - Ozark
Andrews University
Antelope Valley College
Arkansas State University Mid-South
Augusta Technical College
Aviation High School
Aviation Institute of Maintenance-Chesapeake
Aviation Institute of Maintenance-Dallas
Aviation Institute of Maintenance-Houston
Aviation Institute of Maintenance-Kansas City
Aviation Institute of Maintenance-Las Vegas
Aviation Institute of Maintenance-Oakland
Aviation Institute of Maintenance-Philadelphia
Aviation Training Institute at Vaughn College
Baton Rouge Community College
Big Bend Community College
Blue Ridge Community College
Boynton Beach Community High School
Broward College
Burlington Technical Center
Central Florida Aerospace Academy
Central New Mexico Community College
Chaffey College
Chandler Gilbert Community College
Cincinnati State Technical and Community College
Clover Park Technical College
Coastal Alabama Community College
College of Alameda
Colorado Northwestern Community College
Connecticut Aero Tech School
Craven Community College
CV-TEC
Delaware Technical Community College
Eastern Florida State College
Eastern New Mexico University - Roswell
Embry-Riddle Aeronautical University
Florida State College at Jacksonville
Fox Valley Technical College
Georgia Northwestern Technical College
Gordon Cooper Technology Center
Greenville Technical College
Hallmark University
Iowa Western Community College
Kansas State University - Salina
Lake Superior College
Lane Community College
Lansing Community College
Lewis University
Liberty University
Lincoln Land Community College
Lorenzo Walker Institute of Technology
Mahoning County Career & Technical Center
Metro Technology Center
Miami Valley Career Technology Center
MIAT College of Technology - Canton
MIAT College of Technology - Houston
APPENDIX 1: CONTRIBUTING AMTS

Middle Tennessee State University
Midland College
Minneapolis Community and Technical College
Mohawk Valley Community College
Moody Bible Institute, Moody Aviation
MT San Antonio College
Nashua Community College
National Aviation Academy Inc - Clearwater
North Central Institute
North Idaho College
Northern Michigan University
Northland Community and Technical College
Northwest Mississippi Community College
Pima Community College
Pittsburgh Institute of Aeronautics - Hagerstown
Pittsburgh Institute of Aeronautics - Myrtle Beach
Pittsburgh Institute of Aeronautics - Pittsburgh
Pittsburgh Institute of Aeronautics - Youngstown
Portland Community College
Purdue University
Robert C Byrd National Aerospace Education Center
Salt Lake Community College
San Joaquin Valley College
Savannah Technical College
Sinclair Community College
South Louisiana Community College
Southern Illinois University Carbondale
Southwest Technology Center
Southwestern Illinois College
Spartan College of Aeronautics and Technology - Denver
Spartan College of Aeronautics and Technology - Tulsa
St. Philip's College
State Technical College of Missouri
Tarrant County College
Teterboro School of Aeronautics
Texas State Technical College - Harlingen
Tulsa Technology Center
University of Alaska Anchorage
University of the District of Columbia Community College
Victor Valley College
Vincennes University Aviation Technology Center
Wayne Community College
Wichita Area Technical College
Thank you

The following aviation employers support technician education through ATEC membership: Join their ranks.