The World of Aviation

Explore the destinations possible through an aviation education.

Aviation is a vast, *ever-expanding industry, constantly contributing to the day-to-day lives of individuals all around the world. When considering a career as an aviation technician, the first thought that comes to mind is often the passenger planes of commercial airlines. Realistically, this sector of aviation, though the most recognizable, is only a small portion of the industry.*

At PIA, our relationships with employers have allowed us to create connections with aviation companies from every sector of the industry. We've put together this information to provide insight on the various sectors in which an aviation technician can expand their career, and to encourage you to explore every sector of aviation as you begin your career search.

PIA Graduates in Aviation

Over the last ten years, PIA gradutes have begun rewarding careers in these sectors of aviation.*

*Statistics are based on graduates employed in the aviation sector from January 2010 – December 2020.

Commercial Aviation

Commercial aviation encompasses several categories, including commuter, regional, national, and major airlines. These categories depend on the revenue an airline generates. Companies like Delta, United, and American are some of the most recognizable airlines in the country. Mechanics interested in working for commercial airlines often begin their careers at smaller regional airlines, which are often affiliated with major airlines. A common position for a mechanic in this sector is Line Technician.

On an average day, over 28,000 commercial flights take place in the US, according to the National Air Traffic Controllers Association. In 2018, the most popular aircraft used in commercial flight was the Boeing 737-800, making up over 11% of the commercial aircraft fleet.

Sources:
science.howstuffworks.com/transport/flight/modern/airline1.htm#:~:text=Medium%20regionals%20%2D%20These%20airlines%20operate,with%20less%20than%2061%20seats.
fi-aeroweb.com/US-Commercial-Aircraft-Fleet.html
sos.noaa.gov/datasets/air-traffic/

The Boeing 767 sucks in enough air through its engines to fill a Goodyear Blimp in 7 seconds.

factretriever.com/airplane-facts

38% ***PIA GRADUATE EMPLOYMENT IN COMMERCIAL AVIATION****

MRO

An "MRO" in aviation refers to a Maintenance, Repair, and Overhaul Facility, which specializes in maintaining, repairing, and overhauling aircraft. MRO's obtain approvals that specify the type of work they are able to do, including determining the size of aircraft they can work on, the components they are authorized to maintain, and even specialized services they can offer, like non-destructive testing.

An MRO specializing in base maintenance may be responsible for providing airlines and pilots with large-scale maintenance tasks, such as heavy checks. These checks can take a few weeks to a few months to complete.

Sources:
airlinebasics.com/the-definition-of-an-aviation-mro/

A "D-Check" on an aircraft can take anywhere between six to nine weeks to complete.

35% ***PIA GRADUATE EMPLOYMENT IN THE MRO SECTOR****

Aircraft Manufacturing

When a career in aviation maintenance comes to mind, the first thought is often of working on an aircraft currently in use. Another avenue for technicians is building and assembling those airplanes before they make their first flight.

Companies like Boeing, Bombardier, Embraer, and Gulfstream seek out aviation technicians to manufacture the aircraft themselves, as well as the parts needed to maintain those aircraft once in use. Planes go through rigorous testing before they can fly – including simulating years' worth of wear in a few short weeks. In addition, companies like Pratt & Whitney and GE Aviation build the engines that are attached to these planes, going through equally as rigorous tests to ensure optimal performance.

Sources:
bjtonline.com/business-jet-news/the-major-airplane-manufacturers-at-a-glance

Each plane must ace tens of thousands of safety tests, everything from simulated lightning bolts and hailstorms to bird strikes and mid-air stalling.

travelandleisure.com/airlines-airports/new-airplane-quality-testing

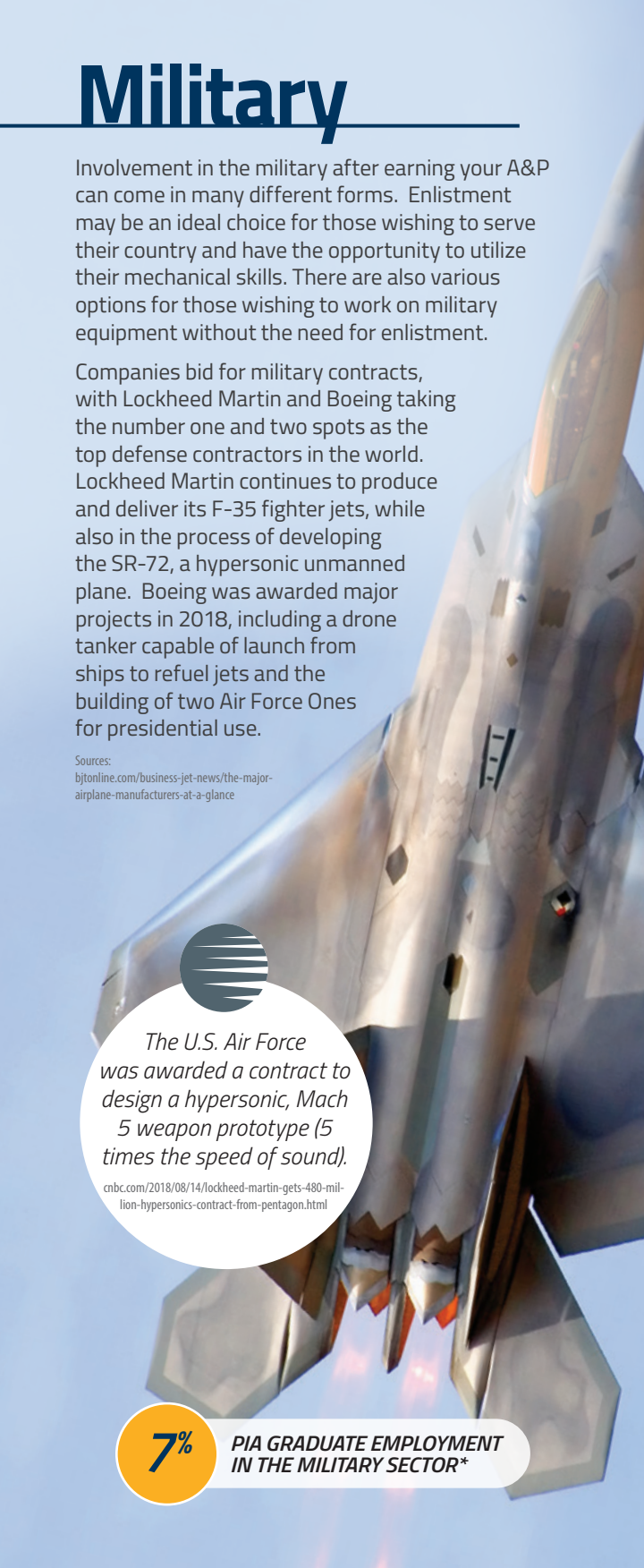
8% ***PIA GRADUATE EMPLOYMENT IN AIRCRAFT MANUFACTURING****

Military

Involvement in the military after earning your A&P can come in many different forms. Enlistment may be an ideal choice for those wishing to serve their country and have the opportunity to utilize their mechanical skills. There are also various options for those wishing to work on military equipment without the need for enlistment.

Companies bid for military contracts, with Lockheed Martin and Boeing taking the number one and two spots as the top defense contractors in the world. Lockheed Martin continues to produce and deliver its F-35 fighter jets, while also in the process of developing the SR-72, a hypersonic unmanned plane. Boeing was awarded major projects in 2018, including a drone tanker capable of launch from ships to refuel jets and the building of two Air Force Ones for presidential use.

Sources:
bjtonline.com/business-jet-news/the-major-airplane-manufacturers-at-a-glance



The U.S. Air Force was awarded a contract to design a hypersonic, Mach 5 weapon prototype (5 times the speed of sound).

cnbc.com/2018/08/14/lockheed-martin-gets-480-million-hypersonics-contract-from-pentagon.html

7% ***PIA GRADUATE EMPLOYMENT IN THE MILITARY SECTOR****

Corporate Aviation

In the fast-paced corporate world of today, companies desire the ability to quickly and efficiently transport employees, customers, and goods to and from their various locations. These companies can range from Fortune 500 Companies to small non-profit organizations. All these organizations benefit from the use of corporate or business aviation in an effort to achieve their goals.

The industry of corporate aviation encompasses a wide variety of aircraft, from fixed-wing, single pilot planes to turbine aircraft capable of international flight. This sector of aviation employs more than 1.2 million individuals.

Sources:
nbaa.org/business-aviation/

VS

Business aviation serves 10 times the number of US airports than commercial airlines (over 5,000 vs. about 500).

nbaa.org/wp-content/uploads/2018/01/business-aviation-fact-book.pdf

5% ***PIA GRADUATE EMPLOYMENT IN CORPORATE AVIATION****

Cargo

The cargo sector of aviation transports 657 million packages worth 17.8 billion dollars in a single day. Transportation of letters, packages, vaccines, and even racehorses is made possible through well-known organizations like FedEx Express, UPS Airlines, and Amazon Air. With over 50 organizations in the US focusing on cargo transport, having skilled aviation technicians to keep trade active around the world is essential.

One of the most famous examples of a unique use of aircraft in cargo transport is Boeing's 747 Dreamlifter. The aircraft – an extensively modified version of Boeing's 747-400 – is used primarily to transport aircraft components of the Boeing 787 Dreamliner from suppliers to Boeing's assembly plants. Even the military relies on the use of massive cargo aircraft to transport troops, weaponry, and other military equipment all around the world.

Source:
iata.org/cargo

It takes materials from 14 COUNTRIES and OVER 50,000 MILES to create ONE tennis ball.

iata.org/cargo

2% ***PIA GRADUATE EMPLOYMENT IN THE CARGO SECTOR****

Medical Transport

It is estimated that there are nearly 400,000 medical helicopter transports, and another 150,000 fixed-wing medical transports, each year. These aircraft respond to medical emergencies, transport high-risk patients to and from hospitals, connect specialists with patients, transport donor organs, and more.

Safety of passengers aboard relies not only on the care given by the medical professionals, but by the maintenance staff tasked with keeping the aircraft safe. These aircraft are subject to the same rules and standards set forth by the FAA, overseeing inspections and maintenance. The use of air transportation for patients has become an essential component of the healthcare system, which can help save lives and reduce healthcare costs.

Source:
airambulanceguides.com/history-of-air-medical-and-air-ambulance-services-in-the-united-states/
aams.org/member-services/fact-sheet-faqs/

In 1972 St. Anthony Central Hospital in Denver was the first civilian, hospital-based medical helicopter program in the United States.

airambulanceguides.com/history-of-air-medical-and-air-ambulance-services-in-the-united-states/

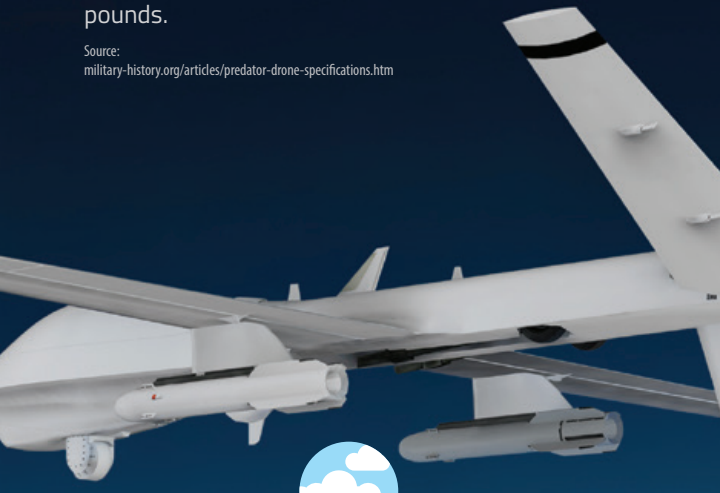
2% ***PIA GRADUATE EMPLOYMENT IN MEDICAL TRANSPORTATION****

Unmanned Aircraft

Whether a plane has a pilot or not, it is still required to meet the standards set forth by the FAA. A drone is comprised of intricate avionics, airframe, and powerplant systems. Their maintenance falls not only on the IT professionals that understand their operation, but the technicians that have a maintenance and avionics background to perform their intricate repairs.

Small civilian drones are not the drones that require a skilled mechanical background to maintain. General Atomics' Predator drone, which is currently used in limited service by Air Forces around the world, features a Rotax 914F four-cylinder aircraft engine, achieves speeds of up to 135 miles per hour, and weighs over 1,000 pounds.

Source:
military-history.org/articles/predator-drone-specifications.htm



The MQ-1 Predator Drone, utilized by the US Military, has a range of 770 miles and can reach an altitude of 25,000 feet.

af.mil/About-Us/Fact-Sheets/Display/Article/104469/mq-1b-predator/

2% ***PIA GRADUATE EMPLOYMENT IN THE UNMANNED SECTOR****

Space

The interest in space travel that took off in the 1950's still exists today. While NASA remains a well-known entity in space exploration in the US, private companies like SpaceX, Blue Origins, and Virgin Galactic have made their way into the news with their innovative technologies. Companies have expressed a desire for civilians to be able to purchase tickets on these spacecraft. Virgin Galactic will transport you 62-miles skyward – at a $250,000 price tag.

A dedicated Aviation Technician can pursue their goal of entering this sector through hard work, perseverance, and pursuing higher education. A mechanical background can assist individuals in this industry with the manufacturing and testing of various components of rocket propulsion systems.

Source:
nbcnews.com/mach/science/how-much-does-space-travel-cost-ncna919011

SpaceX charges $62 million to send commercial satellites into orbit.

nbcnews.com/mach/science/how-much-does-space-travel-cost-ncna919011

1% ***PIA GRADUATE EMPLOYMENT IN THE SPACE SECTOR****

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