

LIFT WWA

Winter 2018



MRJ: Soaring in Washington

Inside:

Attracting foreign businesses
to Washington

Job creation benefits of tax incentives

Perspective: Challenges and
opportunities in Aerospace



EDITOR'S NOTE

HAPPY NEW YEAR!

Going into a new year is always exciting, especially for an organization whose core mission is advocacy. Many times, legislators, industry, and other stakeholders get to hit the “refresh” button on a variety of issues because we have been granted the gift of time to gather new information and look for new solutions.

2018 also holds promise in the potential announcement by Boeing of a new commercial airplane. Over the past several months there have been a bevy of news articles about Boeing's new program office, headed by former 787 executive, Mark Jenks. Jenks is charged with examining the feasibility of an NMA (New Midsize Airplane).

Time will tell whether Boeing will embark on the program and, if so, whether design, production and assembly will be sited in Washington. What is for-sure, though, is we will continue to hear about the NMA for the foreseeable future. It is a potential opportunity for the state and the Washington aerospace industry that will have us examining—*closer than ever*—innovation and technology, workforce training and education, transportation, and much more as they relate to aerospace design and manufacturing.

Our cover this issue is about Mitsubishi's Regional Jet (MRJ). The company has invested a considerable amount of money and time in Washington since setting up in Moses Lake for flight tests and in Seattle for engineering. Their collaboration with AeroTEC is yet another investment they've made in Washington, hiring in-state workers as much as possible.

As a Tier 1 supplier to Boeing, including supplying wing boxes for the 787, Mitsubishi cites proximity to the OEM as one reason they chose to locate in the state. Additionally, Washington's established aerospace hub, including the supply chain, trained workers, and

training and educational programs were a draw. The company also says their decision to locate in Moses Lake was in large part due to the synergies at the Port of Moses Lake and Grant County International Airport.

This phenomenon—companies from outside of Washington desiring to locate in-state because of the established eco-system—is a relatively common occurrence, and is oftentimes referred to as “the Boeing effect.” This issue examines a few of the businesses that have moved to Washington due to Boeing and/or the industry.

This issue also highlights the investment various businesses have made in workforce training and educational programs. Some of this is reflective of businesses utilizing aerospace tax incentives and reinvesting it in ways that support and grow their businesses, jobs, and the economy.

Finally, there is a new member highlight by P3 Group, which offers innovative solutions-oriented approaches in consulting, engineering and management support.

As we move further into 2018, please feel free to contact me with questions, comments or suggestions!

Happy New Year,

Kelly Maloney

LIFT WA editor

AFA president and CEO



Aqua Quip started in the late 1950s and to this day is still a family owned business. With 9 locations spread across the Puget Sound region, Brian Quint, Aqua Quip owner, cites aerospace and Boeing workers for much of the company's longevity and ability to contribute to the economy.

"In the 50s and up to the 70s, the growth of the Puget Sound economy was tied to aerospace and aerospace manufacturing. The foundation of our business was built on the aerospace workforce. When one looks at the number of jobs that are associated with aerospace, the region's dependence on the aerospace workforce is still incredibly huge."

- Brian Quint, owner, Aqua Quip

To learn more, watch the video at afa-wa.com/aerospace-in-washington.

LIFT WA

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VOLUME 2, NO. 1 / WINTER 2018

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Building the First Commercial Aircraft from Japan with Help from Washington State

Mitsubishi Aircraft Corporation is building the first commercial jet aircraft from Japan and we are developing it with the help of Washington state. The Mitsubishi Regional Jet (MRJ) is a tremendous source of pride for our country and is the culmination of a long history in commercial aviation.

Mitsubishi Heavy Industries (MHI) has more than 40 years of manufacturing components as a Tier 1 supplier for global aviation giants like Boeing. With the development of Mitsubishi Aircraft Corporation and the MRJ program, MHI has focused its extensive aviation experience and vast resources into creating the most advanced and most efficient regional jet in the world.

The MRJ is a very important development for our country as we are not only building an aircraft, but we are also rejuvenating the commercial aerospace industry in Japan. To accomplish this we have developed a clean-sheet aircraft design that incorporates advanced aerodynamics, the latest technologies, and a global development program that includes world class flight test and engineering centers in Washington state.

We selected Washington state as the home for our Seattle Engineering Center and our Moses Lake Flight Test Center because of its long history of driving aerospace innovation and its commitment to the aviation industry. Many of the most advanced aerospace companies in the world are located here and it is also home for several partners for our MRJ program.

Our Seattle Engineering Center was established in July 2015. We share office space with our partner AeroTEC, a turnkey flight testing, engineering and certification firm headquartered in Seattle. With AeroTEC, we employ about 150 employees here who support the MRJ flight test program by planning and coordinating ground tests, refining flight test plans, accelerating technical solutions, and analyzing flight test data. This team works very closely with our main design and engineering office in Nagoya, Japan, as well as the flight test center in Moses Lake.

Our Moses Lake Flight Test Center (MFC) commenced operations in August 2016. It is housed at an AeroTEC facility located on the Grant County International Airport in Moses Lake. Here there are over 400 employees, including engineers and aviation experts from around the globe working together to rigorously test the MRJ as we drive towards type certification in 2019.


“We selected Washington state... because of its long history of driving aerospace innovation and its commitment to the aviation industry. Many of the most advanced aerospace companies in the world are located here and it is also home for several partners for our MRJ program.”

As a Tier 1 supplier to Boeing, including supplying wing boxes for the 787, proximity to Boeing was an important site selection decision point.



At MFC we have a fleet of four MRJ flight test aircraft (FTA). We have accumulated more than 1500 flight hours and in 2017 alone, our MRJ program accomplished several flight test milestones including natural icing, high speed flutter, and extreme temperature tests just to name a few. One of the statistics we are most proud of is that the flight test program has seen only a 1 percent takeoff cancellation rate due to technical issues. We feel that this is a great testament to the quality of the aircraft and a terrific highlight for its future as a regional jet.

Teamwork is a vital component of the success of our MRJ program. We believe that the communities in which we live and work are important parts of our team. We want to share our success with our communities and help support causes in the areas where we live and work. Last year we helped sponsor a Science, Technology, Engineering and Math (STEM) event in Moses Lake to introduce students to some of the career opportunities that are available through STEM education. Education is a great tool for our youth, but just as important is being able to use that tool to build a career. In the coming years, we hope to continue to promote STEM education and career opportunities with the Moses Lake community and surrounding areas.

We are very proud to be members of Washington state and your historic aviation community. We look forward to continuing the success of our MRJ program here and we thank you for the acceptance and support we have already received. 



Hitoshi "Hank" Iwasa is the Head of Moses Lake Flight Test Center. Iwasa-san has been with the MRJ program from its inception and he plays a crucial role overseeing the flight test program in Moses Lake.

THE "BOEING EFFECT"

Boeing Attracts International Businesses to Washington

Nearly half of The Boeing Company's workforce is located in Washington, making Boeing the largest private employer in the state. In addition to billions of dollars in payroll and vendor fees, taxes, and construction costs in 2017, Boeing regularly invests—staff time and financially—in training and education, charitable donations, innovative technologies, energy conservation initiatives, sustainable aviation biofuels, and much more, in Washington state.

The aerospace giant also makes non-linear investments that generate enormous economic benefit in Washington, such as relationships with foreign companies that result in those companies making capital investments in the state.

Mitsubishi Aircraft Corporation--MRJ

Mitsubishi Aircraft Corporation launched both an engineering office in Seattle focusing on flight test analysis, and a 65,000 square foot flight test facility in Moses Lake, creating more than 200 high-wage jobs in Washington state. The first Japanese built commercial jet since the 1960s, the MRJ (Mitsubishi Regional Jet) uses components from Washington state suppliers Esterline (Korry), Zodiac, and Avtech Tyee, among other Washington suppliers. AeroTEC, a Seattle-based firm specializing in helping companies fill testing, engineering and certification positions, has been working with Mitsubishi for the past two years to help them hire Washington engineers.





Zunum Aero

Kirkland-based Zunum Aero, an early stage aircraft/technology company developing hybrid-electric aircraft for short-haul regional travel, has been chosen by Boeing's new small-venture capital firm, HorizonX, to receive several million dollars in capital investment to help it achieve its goal of having its aircraft in service by the early 2020s.

Other foreign companies that have recently located in Washington to be in close proximity to Boeing include:

Kuka Aerospace

German robotics company, Kuka, has located next to Boeing's Everett plant and hired 75 employees to maintain and service their automated system used on the Boeing 777X. The system, Fuselage Automated Upright Build (FAUB) uses robotics to install nearly 60,000 fasteners on the 777X fuselage.

Umbra Cuscinetti


Italian aerospace company, Umbra Cuscinetti, chose to locate in Washington primarily because of Boeing. There is an Umbra part that powers a flight-critical control surface on every Boeing commercial aircraft model.

In Everett, Umbra employs around 120 people and are currently hiring for living wage jobs with the opportunity for advancement and training.

MTorres

Spanish automated equipment manufacturer and engineering firm, MTorres, located a facility in Everett two years ago to provide Boeing with robotics for the 777X wing spar. Kuka robotics drill and fasten stiffeners and rib posts to the wings of the jetliner, but MTorres, which currently has 120 employees at their Everett facility, has loftier goals in mind.

In December, 2017, they opened a new \$17 million, 70,000 square foot innovation and manufacturing center destined, according to plans, to develop fuselages without fasteners—a never-before manufacturing concept that could mean the elimination of fasteners through a process that produces fuselages out of a single piece of carbon fiber.

They hope to employ up to 175 through increased statements of work with a number of customers. 



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THE “INCENTIVE EFFECT”

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Aerospace Tax Incentives Increase Company Viability and Help Expand Workforce

There are bright spots on the horizon for Washington state aerospace companies, many of which are reinvesting in their businesses and workforce. Hiring for new positions is also on the rise—from traditional machinists and engineers to those working robotics and doing mechatronics (fixing the robotics) on Boeing’s 777X composite carbon fiber wing.

Incentives help aerospace companies thrive: more are hiring and re-investing in their businesses.

Approximately 450 Washington state aerospace companies directly utilize aerospace tax incentives, most reportedly reinvesting their savings in their businesses and their workforce.

Boeing itself has forecast it will need 10 percent more workers on the 777X to maintain various elements of production that have been automated—those are new jobs and job classifications, like laying down carbon fiber tape. And, after holding five job fairs in late 2017, Boeing is also rehiring many assemblers, electricians and maintenance technicians who took early retirement

in order to keep up with production on other aircraft programs that have seen an increase in sales.

777X Production Work Orders | 737 Rate Ramp Up

As Boeing starts production on the 777X and considers ramping up the production rate on the 737, Washington state Boeing suppliers and vendors see a financial benefit to Boeing’s utilization of the incentives, too. Suppliers report more flexibility in hiring additional workers, more purchasing power for capital equipment, and for many, expanding their operations and facilities due to an increase in Boeing work orders.

And, businesses outside of the aerospace industry report increased economic benefits from Boeing and the other aerospace businesses that utilize the incentives.

“Machinists, Inc. is hiring new machinists for 737 rate ramp up and 777X work orders.”

-Jeff Tomson, Director

Incentives at Work

Machinists, Inc.

Location: South Park, Seattle, WA

Founded: 1941

What they do: Tooling and Machining

Machinists, Inc. is a family-owned business that has diversified its customer base over

the years to withstand the cycles of aerospace. Some of the industries and businesses they support include commercial space (Blue Origin and SpaceX), marine, medical, Genie and General Dynamics. Boeing remains their largest customer.

In 2017, Machinists, Inc. invested \$3 million in capital equipment to purchase a new mill and on equipment upgrades.

They spent \$8 million on their suppliers, including supplies—materials, processes, subs (not including labor costs).

Their all-in payroll (wages/salaries/benefits) was \$17 million.

Machinists, Inc. is hiring machinists for 737 rate ramp up and 777X work orders.

To learn more, watch the video at afa-wa.com/aerospace-in-washington

Altek

Location: Liberty Lake, WA

Founded: 1976 in home garage doing contract manufacturing

What they do: Tooling, Plastic Injection Molding, Machining, and Assembly

In 2017, aerospace tax credits saved Altek more than \$50,000 on an aerospace customer base of about 55 percent. The company cites the incentives as giving them the flexibility to spend a substantial amount of time on employee training and development, freeing up resources to expand and bring on new jobs, investing in new technology, and expanding their market.

Altek is a world-class manufacturing facility with a complete range of product realization services that include design, engineering, manufacturing and inventory management.

They have been ISO9001 certified since 1999 and achieved AS9100 certification in 2010. Altek is highly diversified, and custom manufactures products for the aerospace, medical, health and fitness, diagnostics, laser and optics industries, among others.



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SNAPSHOT | ALTEK


- Company revenues \$30 Million
- Utilizes Aerospace Tax incentives (approximately 55% of ALTEK's work is in aerospace)
- ALTEK reinvests the more than \$50,000 in Aerospace Tax Incentives they receive by providing significant in-house training and career development to its current employees
- Works collaboratively with the Spokane Community College Machinist Program

Industry-driven training | Creating the next generation of workers

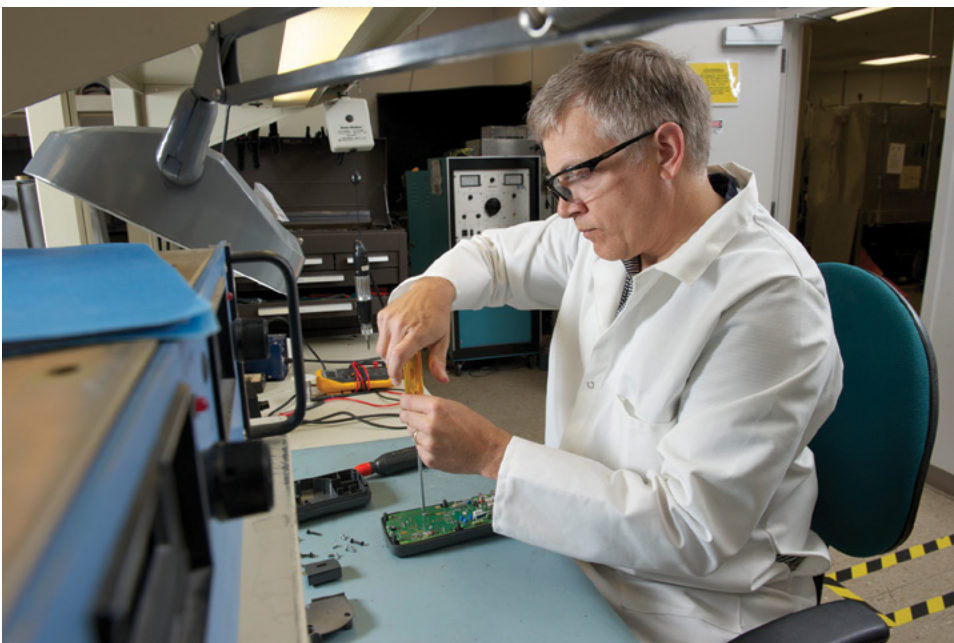
As a leader in the Eastern Washington manufacturing realm, ALTEK co-founded a Spokane-area association aimed at strengthening and uniting the local manufacturing base to support medical and aerospace manufacturing in the region.

ALTEK and other manufacturers collaborate with Spokane Community College providing industry feedback so they can customize their programs to industry needs.

In 2017, Altek hired one of the students from the program as a paid intern. The arrangement allowed the student to get his degree while also receiving industry-specific training at Altek, so that he was able to join the organization full-time as soon as he graduated.

"We are invested in our community, collaborating with other businesses and local schools to create an environment conducive to the next generation of workers. We want to see them succeed," said Marzetta. 

To learn more, watch the video at afa-wa.com/aerospace-in-washington



Everett Community College's 2017 Industry Excellence Award—Fluke Corporation

EvCC's 2017 Industry Excellence Award goes to Fluke Corporation. Fluke has been a significant contributor and partner with EvCC since 1992. They have contributed equipment, and provided scholarships and cash contributions in support of a variety of EvCC programs, including the new avionics and mechatronics programs. Founded in 1948, Fluke Corporation is the world leader in compact, professional electronic test tools and software for measuring and condition monitoring.

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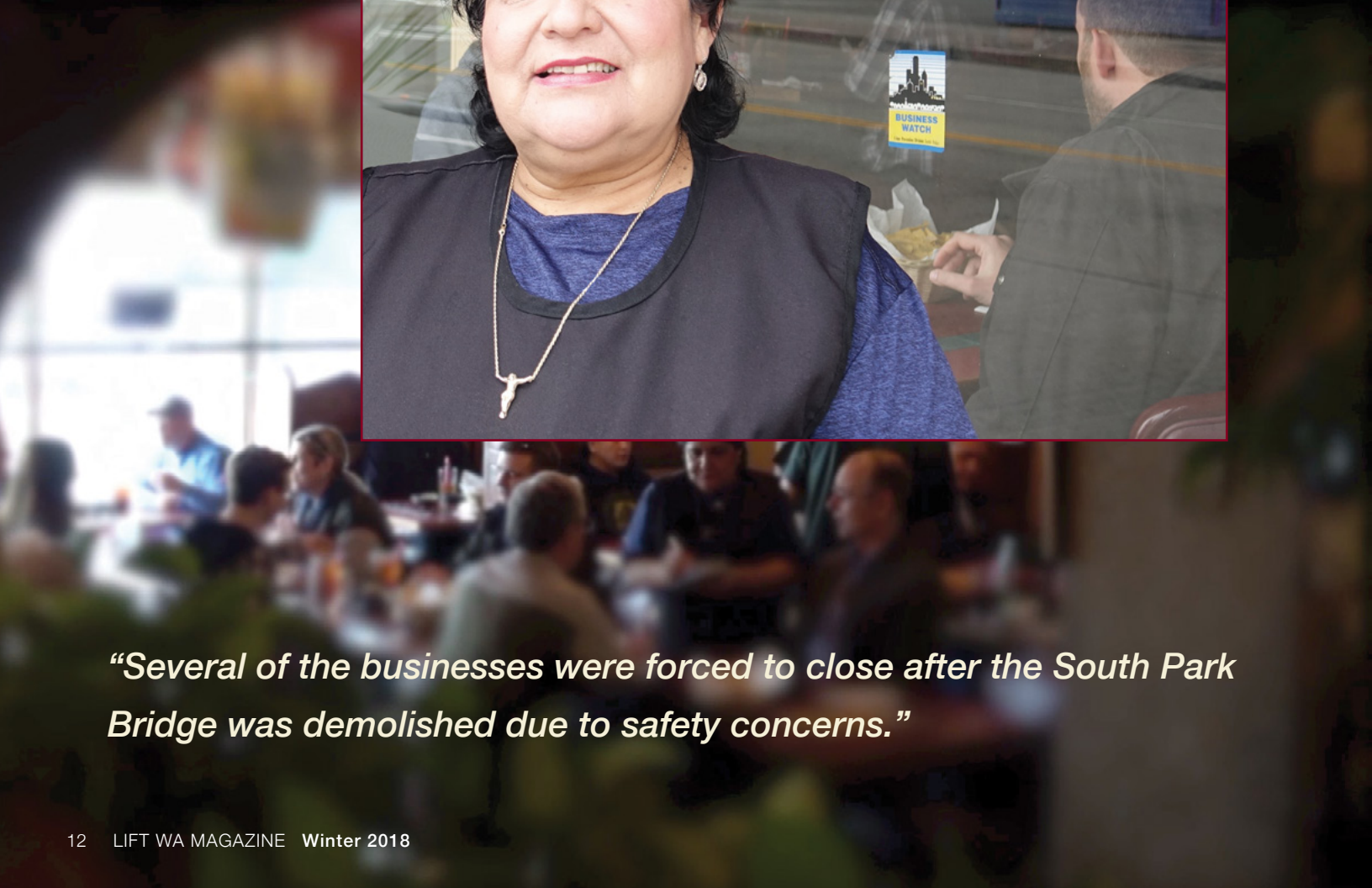


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“Several of the businesses were forced to close after the South Park Bridge was demolished due to safety concerns.”

THE “AEROSPACE EFFECT”

Businesses and schools across the State of Washington receive an economic benefit from the activities of aerospace businesses.

When aerospace is strong, companies in other industries can experience an increase in sales resulting in employee retention, investments in worker training, increases in capital equipment spends, and new facility construction, among other advantages.

When aerospace is strong, schools and training facilities reap the benefits of financial and equipment donations, aerospace staff volunteer time, and industry-led curricula.

Below are a few examples of how businesses in unrelated sectors benefit from a thriving aerospace industry.

Jalisco's Restaurant

South Park, Seattle, WA

Timeline:

1992 Restaurant Founded by Julia Ramos and her husband

1992 – 2010 Aerospace machinist customers helped grow business

2010—2014 South Park Bridge Closure--Lean Years, near bankruptcy. (Several businesses in the area closed.)

2014 New South Park Bridge opened. Aerospace machinists begin coming back. Jalisco's staves off closure.

From 2010 until June 2014, the old South Park Bridge in Seattle was demolished, effectively shutting off access from the north side of the bridge to the local merchants in the South Park neighborhood for four years.

Those were lean years for the many retail establishments that had come to rely on a strong aerospace customer base—from Machinists, Inc., Boeing, and other manufacturers—who filled their tables and aisles before the closure.

The bridge opening in 2014 has brought renewed life and energy to the area, including to Jalisco's Restaurant.

Aerospace machinists have once again become regular customers at Jalisco's, providing an economic resurgence to the family friendly restaurant and other businesses in the South Park area. During the lean years, Jalisco's owners, Julia Ramos and her husband, worked seven days a week—sometimes without pay—to make ends meet at the restaurant and keep it open. Once the new bridge opened, aerospace machinists in the area helped revitalize the community through their patronage. The hard work and determination of Jalisco's owners has paid off in customers who “feel like family.”

Customers appreciate Jalisco's Family Friendly Feel

As a family owned machine shop with a high concentration of aerospace customers needing welding, sandblasting and painting in the South Park/Georgetown area, our workers love to eat at local places such as Jalisco's, which is a great Mexican restaurant. We've been going to Jalisco's for probably 20 years, but the bridge closure was difficult on them. We are happy to be back and supporting Jalisco's and other local businesses.

Hugh La Bossier, president
Machinists, Inc.

To learn more about Jalisco's family friendly restaurant in South Park and how they are thriving after the bridge closure, watch the video at afa-wa.com/aerospace-in-washington.



Bridge Construction in 2014 - Photo by Joe Mabel, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=32825583>

Auburn Chevrolet

Location: Auburn, WA

Founded: 1938

What they offer:

- Retail Sales
- Fleet Sales
- Service

Sales forecasts set by the Chevrolet manufacturer have been exceeded due to Boeing employees seeking new automobiles when they receive their bonuses.

Auburn Chevrolet has been serving the Auburn community since 1938 in retail sales and fleet sales and services. Andy Phillips, Auburn Chevrolet BDC sales manager, says every spring he is amazed at the increase in traffic from Boeing employees seeking new cars and trucks when they receive their bonus checks.

It's an illustration of the power of Boeing employees' spending in their local communities. "We see a significant increase in sales and service retention that continues to grow," said Phillips.

Auburn Chevrolet also provides maintenance services to Boeing's fleet of trucks, a line of business that has helped the auto dealer retain and grow jobs.

To learn more about Auburn Chevrolet and how sales requests increase during the months when Boeing hands out bonuses, watch the video at afa-wa.com/aerospace-in-washington.

Education and Training

WATR

In 2017, the Boeing Company partnered with Edmonds Community College by providing tools and materials in support of WATR Center programs.

WATR offers five certificates for entry-level employment in the aerospace industry: composites, aerospace assembly, electrical assembly, tooling, and quality assurance. Each Certificate of Completion is completed in 12 weeks of training.

WATR is a self-support program. Without this support of Boeing donations, a value of approximately \$100,000 per year, WATR would have to dramatically increase the cost to the students.



The training curriculum was written with assistance from subject matter experts and WATR's advisory board members of industry suppliers. Boeing and suppliers, including Electroimpact, Exotic Metals, AMI Metals, Orion, and Skills Inc., provide this critical service, which keeps the program relevant to the needs of the industry.

Everett Community College

In 2017, EvCC received \$900,804 in equipment, materials, and donations for its aerospace and advanced manufacturing programs. The EvCC Foundation received \$25,000 in scholarships and program support from aerospace companies, \$5,000 in dozens of individual donations from people who work at local aerospace companies, and \$25,000 from a KeyBank Foundation grant to support aerospace programs. The Foundation also received \$84,000 from Boeing, including a Center of Excellence grant of \$60,000.

These donations and scholarships supported students across many programs, including manufacturing pre-employment, aviation maintenance, avionics, precision machining, mechatronics, composites, welding, and engineering technology.

“EvCC is deeply appreciative of the generosity of our employer partners. Their support has been critical to our programs in keeping them current, supplied with materials and consumables, and supported for growth to meet the needs of suppliers and Boeing,” John Bonner, vice president, EvCC.

According to Bonner, scholarships are particularly important. They help students who are unable to enroll or stay in the programs due to financial challenges. By supporting student scholarships, EvCC employer partners are helping grow and diversify the aerospace and manufacturing pipeline and making a huge difference in the lives of student recipients.

Employers have also contributed their time and expertise to serve on EvCC advisory committees to guide program direction, keeping them current on industry changes, supporting grant efforts, and providing industry tours and presentations.

Washington State University

In 2017, Boeing invested \$830,000 with WSU, which included \$250,000 for equipment in WSU’s new Everett building, funding for research projects (primarily around development of carbon fiber composite infused permeable pavement), and scholarships.

In addition, Boeing funded 18 individual endowments over the past several years that support professorships, student projects, and scholarships.

In the summer of 2018, Boeing will employ about 20 engineering and business students.

Washington State University counts Boeing as its most significant corporate partner.

Aerospace in Spokane County

Outside of the Puget Sound region, Spokane County has the next largest presence of aerospace suppliers in Washington state. This is a fast-growing industry, doubling in size between 2007 and 2014, now with more than 12,000 employees representing local small companies to regional headquarters of global aerospace giants –International Aerospace Coatings, UT Aerospace Systems, Triumph Composites, and Kaiser Aluminum

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to smaller companies like Hydrfab, Altek, Multifab and Absolute Aviation.

Companies in the Spokane region provide more than \$200 million in aerospace components to Boeing each year.

Competition is fierce in aerospace—and even fiercer in economic development. Every day we are competing with national and global locations for new and expanded facilities. As a border county, we are also competing with Idaho—a state that is vocally and visibly focused on growing their own aerospace industry. They are making investments in education, and local developers are building industrial and business parks adjacent to the state line. In addition, their legislature recently implemented a Tax Reimbursement Incentive which allows for reimbursement of various taxes (up to 30 percent) over the first eight years of a project.

One company has relocated out of Washington and several others are contemplating relocation. For some of these companies the value proposition is heavily

weighted in Idaho's favor. We are doing all that we can to retain these companies; however, the corporate bottom line is driving these decisions.

The decision made in 2013 to extend the aerospace incentives was a good decision. It has led to increased economic prosperity for many aerospace companies located in Eastern Washington that use the savings from the incentives to invest in their businesses, workers and local economies. 



Robin Toth, VP, Business Development, Greater Spokane Incorporated
Robin Toth has been with Greater Spokane Incorporated since January 2005. Her primary responsibilities are to manage recruitment, retention and expansion activities, government contracting, international trade and entrepreneurship, as well as to help drive growth in regional industry clusters such as aerospace, clean technology and health sciences.

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WATR Center Graduates Find Numerous Employment Options

In Aerospace manufacturing, it's always a struggle to find well-trained, qualified employees. One avenue Everett-based Jamco America, a Commercial Aircraft Interiors company, has taken is to turn to the Washington Aerospace Training & Research Center (WATR) to hire top-quality aerospace employees.

"We are very pleased with the skills our WATR personnel have been able to display," said Mike Rayner, Jamco America director of Operations. "We currently have WATR graduates on our staff, and they have all shown good comprehension for the work, as well as the importance of quality being a big part of what they do." Shawn Panek, manager of Aircraft Modification Manufacturing, shared that he believes WATR Center schooling makes it easier to transition to Jamco or anywhere in the aerospace field. "All my employees that have come through the WATR Center are top notch. They're motivated and have great attention to detail and quality," said Panek. "They have been great additions to our team!"

Getting WATR Center graduates to apply and accept employment presents challenges to small and medium-sized manufacturing employers. Often students attend thinking of a career at Boeing. The WATR Center finds that their enrollment fluctuates with Boeing's plans for employment, even though sometimes when employment at Boeing is not available, there are still many employers hiring WATR Center graduates. While Boeing does offer a great career, Jamco America and other employers also offer careers that some employees find to be a better match.

Current WATR graduates at Jamco America

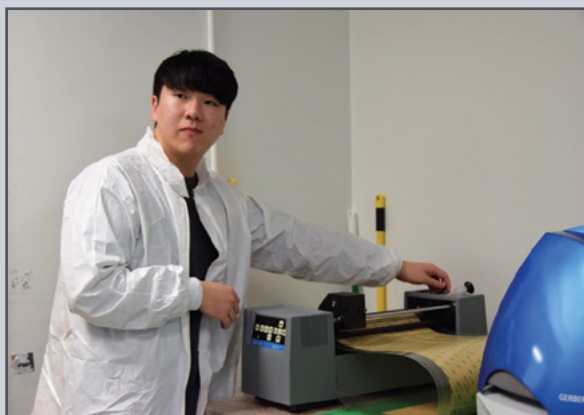
Kyle Hedgecock

Kyle Hedgecock was in construction and between jobs. He took his niece to a career fair at Lake Stevens High where he spoke to a representative who recommended the WATR Center. At WATR, Kyle took Tooling, Quality Assurance, Composites and Electrical and made Honor Roll. Kyle chose Jamco as his best option with a good benefit package and stable environment.



Ki Song

Ki Song wanted to get into aerospace and knew graduates of the WATR Center. Ki did online training followed by hands on Mechanical Assembly, giving him a good foundation. He was employed but searching for a better fit when he saw Jamco on the job site Indeed.com. Ki chose Jamco because it gave him an opportunity to use his skills in a smaller company with a great environment.



Henry Ryu

Almost seven years ago, Henry Ryu wanted to enter the aerospace field, but he found companies were looking for experience he did not yet have. He attended the WATR Center to learn what aerospace companies wanted. WATR teaches skills and tools needed to enter the field with confidence as well as promoting the positive attitude the industry needs and expects.



Jae Yoon

Jae Yoon came to the US from Korea during an economic recession. Despite his experience as an engineer, work was very hard to find. A friend encouraged Jae to go to the WATR Center. It was an opportunity to restart his career by taking Mechanical



Assembly. Jae chose Jamco because of its size, hoping to learn and work his way up. He was hired as an Assembler. Three months later, he transferred to Technician. Five months later he accepted a Flammability Engineer role. Jae sees the WATR Center as a good place to open doors and Jamco as a great place to learn and grow.

About the WATR Center

The WATR Center, managed by Edmonds Community College through an operating agreement with AFA, was created to address the needs of the aerospace industry, according to Larry Cluphf, WATR's executive director. WATR is unique in that it takes just 12 weeks for a person to get trained in specific skills necessary for jobs with suppliers. Besides assembly mechanics, WATR trains people in electrical assembly, tooling, composites, and quality assurance. In addition, they provide customized training for businesses. Currently, the Center works with over 110 aerospace suppliers like Jamco to provide qualified candidates. Since August of 2010, over 1800 graduates are now employed, thanks to the training received at WATR. ▲



Allen Gipson serves as vice president of Operations and Product Development at Jamco America, a commercial aircraft Interiors design and manufacturing company.



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Orion Industries is an AS9100 certified award winning aerospace manufacturing company that also has a social mission. Orion uses its manufacturing division as a platform to teach people that have barriers to employment job skills through training, mentoring, and internships. We then help place these individuals into jobs in the community.

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AFA 2018 Legislative Agenda



Maintain the Tax Structure for Aerospace

Protect Existing Aerospace Tax Incentives – Washington must remain competitive in the rapidly growing aerospace market. Lawmakers must resist any changes to the tax structure established for aerospace Companies.

Protect What Makes Washington Competitive

Support efforts to reform our Workers Compensation System to include removing age barriers for workers to opt for voluntary settlements and clarify occupational disease standards.

Maintain meaningful reforms to our state's Unemployment Insurance system.

Aerospace Workforce Training Opportunities

Continue to invest in workforce training opportunities that ensure our aerospace companies have access to the skilled workforce now and for future demand in new technologies and innovations.

Continue to Invest in a Comprehensive Transportation Funding Strategy

Strategies should clearly articulate project and program priorities, funding strategies for system maintenance, preservation, freight mobility and completion of projects that have been promised to the public and are currently in design or scheduled for construction.



Current Challenges and future opportunities for Aerospace

Current situation

Aerospace today is becoming more and more competitive. There is high demand for the newest development and an increasing number of new aerospace companies. Airlines, likewise, are experiencing increased customer pressure for reduced pricing to stay competitive. This creates demand for the aerospace industry to deliver aircraft with the newest technologies at marginal cost increases. These technologies aim for direct and indirect operational cost reductions to enable airlines to stay profitable.

In addition, shorter development cycles for new airplanes and a growing supplier landscape are leading to challenges for many aerospace companies to deliver their aircraft with the expected quality, time and costs. Furthermore, many companies are investing heavily in new technologies to stay competitive for the future, such as electrical fixed wing airplanes, electrical VTOL (Vertical Take-off and Landing), connected fleet as well as autonomous flight, just to name a few.

Trends in related industries

In related sectors, a revolution called Industry 4.0, which comprises implementing connected automation and data exchange in production technologies, emerged a few years ago. This includes cyber-physical systems, IoT (Internet of Things), cloud computing, big data and analytics, as well as cognitive computing. The automotive industry is implementing these new technologies extensively to minimize lead time and unit costs with improved quality.

Simultaneously, the automotive world is shifting from internal combustion engines to hybrid and fully electric vehicles to minimize emissions in highly populated areas, such as cities and

metropolises. Finally, the development of autonomous vehicles is being strongly pursued, heavily benefitting integration of various sensor types.

Parallel to new production technologies, new and innovative manufacturing possibilities have been developed. These include low-cost composites (out of autoclave), additive manufacturing of different metals (aluminum, steel, titanium) and thermoplastics. These new manufacturing possibilities have very short lead times, enabling the implementation of late design changes in production. This creates advantages such as new opportunities in part design with enhanced product capabilities (e.g. increased cooling capability, maximized stiffness at reduced weight). In order to

shorten the design period for the new manufacturing possibilities, new design and sizing tools (e.g., Paramatters) are being developed, thereby facilitating especially smaller cooperation in increasing competitiveness by shortening development times with cost competitive design tools.

Future Opportunities for Aerospace

Industry 4.0, as well as alternative power trains and autonomous mobility, create high potential in the aerospace environment. The connectivity of different design tools in the design phase allows for a continuous development chain from conceptual design through certification to manufacturing. The design of innovative subcomponents



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and parametric optimization of components for weight and costs can be now conducted in a short timeframe and even across different sites. The results can be directly implemented into the production process at various design stages allowing manufacturing and assembly simulations, including hands-on training using virtual reality. With these new, smart manufacturing technologies, the production of different aircraft parts at multiple sites by different companies around the globe can be aligned, thus drastically reducing lead time and cost of non-quality. With an initial assessment of the production site, a customized Industry 4.0 implementation plan can be derived, with smart improvement steps for a quick return on invest. Maintaining a closed-loop production process with an E2E value chain leads to proficient integration of suppliers around the globe improving the interfaces between sites and companies.

New competitors constantly penetrate the market from different parts of the world with the ability to produce

cost effectively. Integrating Industry 4.0 with a continuous development chain and connected production facilities, and by utilizing novel manufacturing technologies, aerospace businesses are empowered to deliver aircraft with the newest technologies at competitive prices. Additionally, new developments—such as electrical and autonomous aircraft, which will change short-to-medium distance mobility—continue to advance.

One of P3 Group's strongest assets is the deep understanding of the aerospace, automotive and telecommunication industries. Based on our global presence and cross-industry knowledge, we are able to transfer and customize and implement the best solutions for our aerospace clients.

P3 Group is committed to supporting aerospace in Washington, from OEMs to all level of suppliers, with consulting and management support, as well as engineering services, from large OEM's to the smallest suppliers. 



Tamas Havar, PhD SCPM
Tamas Havar leads the Aerospace Business Unit at P3 North America. He is responsible for managing the aerospace business from consulting to management support and engineering services.



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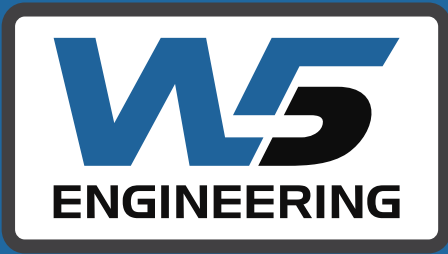
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