

# Washington Manufacturing Alert

The Newsletter  
Of The State's  
Most Important Industry

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## Aerospace 2019: It's Shaping Up To Be (Another) Big Year For The Industry

BY BILL VIRGIN  
Editor/Publisher

Every year is a big year in aerospace, as far as manufacturing in Washington and the broader economy is concerned, but 2019 is rapidly shaping up as an especially significant one for the sector and those who support and are supported by it.

From the launch of new models to production rate increases on existing ones, and companies working on new types of aircraft, all against a backdrop of continuing order strength, trade disputes and predictions of long-term growth for air travel, air cargo and airplane demand, there's a lot going on this year that will affect the direction and fortunes of the industry for years to come.

The industry gathers today for the biggest of the regional aerospace conferences — Pacific Northwest Aerospace Alliance's annual affair in Lynnwood — with a lot on the agenda, and a surplus of both opportunities and challenges. "With both soaring production rates and the new mid-size airplane on the horizon, companies are faced with the need to perform flawlessly and to step up and meet new industry expectations — especially around cost," PNAA says in a conference preview. "To ensure longevity, companies must embrace both concurrently. Productivity without affordability and affordability without productivity will not secure future contracts."

Boeing remains upbeat about its and the industry's future. "Over the long term, we remain highly confident in our outlook, which forecasts demand for nearly 43,000 new airplanes over the next 20 years, which will help double the size of the global fleet," Boeing Chief Executive Dennis Muilenburg said in a recent quarterly-

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## Seattle Company Looks To Send Salmon Around Dams With A Whooshh

A Seattle company is poised to take a device for moving salmon around barriers like dams to full commercialization.

Whooshh Innovations Inc. says its technology can be applied less expensively and faster than conventional fish ladders, and could prove more effective at helping salmon return to spawning grounds.

Sometimes misleadingly referred to as a salmon cannon, Whooshh's device is an irrigated flexible tube that uses slight differences in air pressure, and on occasion gravity, to move fish upstream. The Whooshh system can also be set up with scanners and mechanical sorters that separate wild from hatchery fish and repel invasive species (removing a threat to young fish headed downstream to the ocean).

The system has been in development for years, and put through trials at a hatchery in Whatcom County, on the Yakima River and in California.

Now Whooshh is preparing to scale up production and installation. The company has proposed that the state of

Washington allocate \$2 million in its capital budget to install its system at Chief Joseph Dam on the Columbia River. Whooshh also hopes to install its scanning system at Bonneville Dam, and is seeking \$100,000 from the state for that.

Vincent Bryan III, Whooshh's chief executive, says the company also plans to raise \$10 million in capital this year to finance its expansion. He said Whooshh doesn't anticipate a round after that.

Whooshh, with 13 employees, fabricates its systems at its Pier 91 headquarters with components mainly sourced from within the state.

Whooshh's technology was originally aimed at Washington's agricultural industry, as a way of moving tree fruit without bruising it. The company was known as Picker Technologies, but its joint-venture partner went through a merger and lost interest in that application. The local company kept the intellectual property but had to choose which market to go after.

Says Bryan, "We chose fish."

## With Production Rate Increases Comes Pressure On Aerospace Supply Chain

(Continued from page 1)

earnings conference call. These long-term demand fundamentals combined with healthy market conditions and a robust backlog provides a solid foundation for our planned production rates.”

Muilenburg said the 6.6 percent growth in passenger traffic in 2018 through November was the ninth straight year of above trend growth. “We believe the changing nature of travel with more connected city pairs and the rising middle class has fundamentally expanded traffic patterns and supports sustained growth,” he said. “Airlines are maintaining capacity discipline, keeping supply and demand in balance as industry profitability remains near historic highs. Meanwhile, air cargo continued its solid momentum in 2018 with traffic increasing nearly 4 percent.”

Muilenburg said order intake in 2019 will be “moderated but still at a healthy pace.”

Those experienced in the boom-and-bust cyclical nature of the industry may be wondering when the long-running growth segment of the cycle will exhaust itself. Muilenburg said he thinks there’s more stability and less cyclical nature in aircraft purchasing these days, due to a balance between purchases for growth and purchases to replace older planes in the fleet.

But the industry as a whole is comprised of lots of figurative and literal moving parts. Here’s a look at some of them and how they might impact the regional supply chain.

**The new-market aircraft.** The decision to launch a new middle-of-the market may be anticlimactic when it’s made, so long has it been expected. Boeing recently suggested that the program launch might not come until 2020. Longtime aerospace-industry analyst Scott Hamilton is skeptical, writing that an announcement could come at the Paris Air Show this year, with an “authorization to offer” the plane to customers coming in March or April 2019. Entry into service would be in 2025.

**The 737.** The ongoing story of the 737 — the little

plane that keeps on keeping on, even with a dramatic series of production-rate increases — developed a bit of a hiccup last year, with incomplete planes parked at the Renton airport awaiting parts.

Boeing has been working with suppliers, especially an engine maker, to unsnarl the supply chain. It believes it has most of them untangled, but how well it has will affect the timing to go from the current 52 planes a month (an increase from 47 in 2018) to 57. “Some elements of the supply chain have already moved to that position,” Muilenburg said. “We still have some work to do before we move the entire line to 57 a month.”

Could there be another increase beyond that? Muilenburg said the 737 is sold out into the next decade. “We continue to assess the market upward pressure on the 737 production rate.”

**The 777X.** Boeing will be ramping up production and testing of the Everett-based plane, with first deliveries set for 2020.

**The 787.** Boeing plans to increase production to 14 airplanes per month (built in both Everett and South Carolina).

**Airbus Mobile.** The other half of the global commercial aviation duopoly is also building passenger jets in the U.S. Airbus already has a production facility for its A320 in Alabama, and in January it broke ground on an adjacent building for its A220. Production is scheduled to start in the third quarter of this year.

**New ventures.** 2018 saw a series of announcements of development projects for new planes, some using new propulsion technologies such as electric motors.

Is that an intriguing market for suppliers? “We continue to monitor other smaller regional /alternative fuel aircraft markets, but most of that is still in the early development phases,” says Jim Lee, general manager at Tacoma-based Tool Gauge. “We are mostly gearing up to support the potential 797 should that go forward.”

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## Could Industrial Hemp Be A Growth Crop For Farmers, Processors?

Industrial hemp, its proponents have been proclaiming for years, is nothing like marijuana. Although they are part of the same botanic family, hemp contains too little of the chemical that causes its consumers to get high. Hemp, they add, has a long history as a practical and useful plant. Washington and Jefferson both grew it.

But hemp did share one other characteristic with marijuana. It has long been illegal to grow or process either plant in the U.S.

In an odd twist of events, now marijuana enjoys more freedom for production, processing and consumption, thanks to changes in laws in states like Washington.

Hemp may yet get its day, though. The most recent federal farm bill reverses a decades-long policy banning the growing of hemp. The Washington Legislature this session is taking up a bill that would adjust state law to match federal law. One impediment to growth the hemp industry would like to see done away with is a mandatory four-mile distance between marijuana farms and hemp farms.

Washington has had a limited program for growing and processing hemp for several years, but advocates believe the potential is much greater. "Industrial hemp, the association says, "is a crop such as corn, hay, wheat, soybeans and the like."

And like those crops, it adds, hemp can be used in mul-

tiply ways, including clothing, rope, paper, insulation, cosmetics, biodegradable plastics, construction material, resin, pulp, animal bedding and biodiesel. "Hemp can be used as a viable environmentally friendly replacement to many potentially harmful products such as tree paper, cotton and synthetic clothing," it adds. Hemp paper, for example, doesn't require chemical bleaching.

The state currently has 10 licensed processors of hemp (usually in combination with status as a grower). One, Hemp Northwest LLC, is based in Hood River, Ore., but has been working with the Colville Confederated Tribes (also a licensed grower/processor/marketer), the supplier of seeds. Hemp Northwest, in turn, makes additives for human and pet foods and health products.

Another company, Nutra Pure in Vancouver, produces dietary supplements; the company says its seeds come from Colorado.

That's illustrative of the fact Washington is behind neighboring states. Says Hemp Northwest in a recent blog post, "We are lucky to be in Oregon, where the laws and regulations for processing and marketing industrial hemp are progressive and driving a huge industry. In Washington, ... not so much." The farm bill, it added, may inspire the Legislature to enact "a progressive plan for the future of hemp" in the state.

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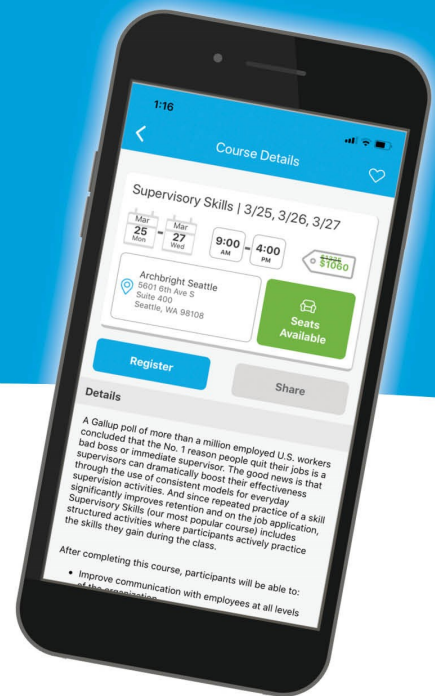
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## Newsire: The Latest In Washington Manufacturing

**YAKIMA:** Window manufacturer Jeld-Wen Inc. plans to close its Yakima production plant and lay off 179 workers beginning April 5, according to a notice filed with the Employment Security Department. Jeld-Wen, once based in Klamath Falls, Ore., is now headquartered in Charlotte.

**YAKIMA:** Thermoforming Systems LLC, which makes equipment for forming plastics into cups, plates, lids and trays for food and beverage markets, has been acquired by Davis-Standard LLC, a Connecticut-based maker of extrusion equipment. Terms weren't disclosed.

**BELLINGHAM:** All American Marine, Inc. has received a contract from the Texas Parks and Wildlife Department for an 80-foot aluminum catamaran.

**BELLEVUE:** The current-conditions index compiled from the purchasing managers survey of the Institute for Supply Management's Western Washington chapter was 56.6 in January, up 2.1 points from December. The 90-day forecast was 59.4, down 3.0 points. A score above 50 indicates economic expansion.

**SEATTLE:** Modumetal Inc. has raised \$14 million from Vulcan Capital and other investors. The company, which makes nanomaterial coatings for corrosion resistance on metal parts, said funds "will be used to build out the global production capacity for nanolaminated products in order to

meet energy customer demand." A Vulcan representative said in a statement "we also see compelling opportunities for the technology in other major sectors such as construction, infrastructure and transportation."

**BELLEVUE:** Truck manufacturer Paccar Inc. said it expects industrywide Class 8 truck orders in the U.S. and Canada to reach 285,000 to 315,000 vehicles in 2019. That's up slightly from the forecast issued in October, which pegged 2019 orders at 280,000 to 310,000. Retail sales in the U.S. and Canada in 2018 were 285,000, up 30 percent from 2017's total.

**SEATTLE:** Magnolia Medical Technologies, a manufacturer of blood testing devices, has raised \$20 million to scale up production and marketing. The company did not disclose where it makes its devices.

**ANACORTES:** The Port of Anacortes Commission approved a five-year extension to a marine terminal lease agreement for Shell Oil US to export anode-grade petroleum coke, used by the steel and aluminum industries, produced at the Shell Puget Sound Refinery.

### PERSONNEL FILE

ClearSign Combustion Corp. of Tukwila has named Colin "Jim" Deller its new president. He will become chief executive officer on April 1.

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## Vigor Industrial Plans New Shipyard At Site Of Yacht Builder

The decision by Vigor Industrial to base production of watercraft for a major military contract at the former Christensen Yacht yard in Vancouver closes the book on one longtime maritime manufacturing company in the region but writes another chapter for a younger, growing one.

Vigor said it will eventually have 400 workers at the Vancouver site working on the maneuver support vessel (light), a 100-foot-long landing craft for the U.S. Army. Vigor says the contract, the largest in its history, could represent nearly \$1 billion of work over 10 years. The contract award was announced in October 2017, but the company indicated at the time it hadn't decided where to build them.

Vigor also plans to use the Vancouver yard for production of aluminum craft including the combatant craft medium for the U.S. Navy and other countries, as well as for U.S. allies, the response boat-medium for the U.S. Coast Guard and export market, Vigor's Fast Interceptor, aluminum fast ferries and commercial workboats.

The company plans to relocate aluminum work presently done in Seattle (at the former Kvichak facility in Ballard) and in Clackamas, Ore. Production on existing projects will

start at Vancouver in May; Work on the landing craft prototype is to start this summer, followed by four boats in the low-rate production phase and 32 when full-rate production has begun.

From the acquisition of a Portland shipyard by industrial investor Frank Foti in 1995, Vigor has grown through acquisitions into the Northwest's dominant shipbuilding and repair company. It acquired Todd Shipyards in 2011 and Kvichak in 2015. The former Todd yard on Harbor Island in Seattle has been used for assembly of car ferries for Washington state.

Vigor currently has 60 employees at the Ballard yard, but said it will offer jobs to all at Vancouver. The company hasn't decided yet what it will do with that property.

Christensen was started in the mid 1980s by a retired contractor who, failing to find a yacht to his liking, set out to build one himself. At one point the luxury yachtbuilder had a sister company making fiberglass wind turbine blades. The company ran into financial difficulty and messy legal wrangling involving original owners and managers and a Tennessee investor who bought into it.