

# INSIGHT MAGAZINE

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**AIRBUS H145**





# INNOVATIONS

## That Enhance Your Operations #WeMakeItReal

AIRBUS HELICOPTERS IS BRINGING BOTH THE PRESENT AND THE FUTURE TO HELI-EXPO 2019.

**A**irbus is driven by a never-ending quest to innovate, create value, increase safety and secure customer loyalty, and Heli-Expo 2019 is the perfect opportunity for the company to show how it intends to continue doing so.

Airbus will be showcasing a brand new version of the H145 with a five-bladed rotor that creates additional value for one of the company's bestsellers. A mock-up of the H160 will be on display with an EMS-outfitted

interior that leaves no doubt about the advantages that its large cabin will bring to those working in this critical segment. Airbus will also be presenting its progress in the field of connected services—how the company has been working to leverage the data that operators are sharing. But, Airbus isn't stopping at improving today's products and services; it also continues to invest in research and innovation to shape the needs of tomorrow.

### H145

A new upgrade of the H145 will be revealed at Heli-Expo and it embodies Airbus's approach to value creation through innovation. This new version takes into account 40 years of operational experience of the H145 family and feedback from customers all around the world. The new H145 boasts several new features that will allow operators to enhance their operations:

- An innovative, five-blade, bearingless rotor that increases the useful load by 150 kilograms (330 pounds), further enhancing the mission capabilities of the aircraft. This new rotor also improves crew and passenger comfort, making the ride much smoother. Other advantages include a smaller D-value, allowing the H145 to operate in more confined areas, simplified maintenance and an increased availability rate.





system and take full advantage of the increased useful load and simplified maintenance.

## H160

The H160 is entering its final year before entry into service. The program is at full throttle—flight testing to bring additional maturity, finalizing its EASA certification, continuing to refine its industrial readiness with the second serial aircraft entering the final assembly line, and delivering its new 3D electronic technical publications. All of this is moving towards one goal: the entry into service of an H160 that delivers innovation with real added value to customers in the onshore and offshore passenger transport, public service, private and business aviation, or emergency medical service (EMS) markets.

The H160 mock-up on display will have an example of an EMS cabin configuration. The H160 is the next-generation intensive-care helicopter, ideal for long distances. It comes with the lowest vibration levels for critical patient or incubator transport. Its low sound levels make it perfectly suited for operating in urban areas. Its exceptionally large cabin makes the H160 a perfect working environment with 360-degree access to the patient. All major HEMS outfitter solutions can be offered on the H160, including various layouts, from one to two stretchers and up to four medical staff to answer even the most demanding patient care transport.

## CUSTOMER SUPPORT & SERVICES

Airbus Helicopters is using data to improve the way it designs, manufactures and supports its helicopters. On the customer service side, the company continues to offer new digital services that help helicopter operators further digitalize their operations. Since Heli-Expo 2018, nearly 600 helicopters

representing around 150 customers are sharing their data with Airbus Helicopters, a number the company hopes to grow to 3,000 within the next four years.

At the same time, analytics services are picking up speed to help customers run their businesses more efficiently. For example, FlyScan predictive maintenance has grown since its launch one year ago, with around 53 helicopters representing 12 customers signed up and avoiding at least one aircraft-on-ground per year per machine.

At Heli-Expo 2019, the company will unveil several new services that make use of the rich data generated by each flight and activity, aiming to help customers ease their maintenance processes and improve flight safety. These include the digitalization of log cards and new analytics around helicopter flight data monitoring.

## RACER

Heli-Expo show-goers will also be able to see how Airbus is preparing for the future of vertical takeoff and landing (VTOL) technology with the high-speed demonstrator codenamed Racer. The Racer demonstrator aims to prove that its combination of rotors, box wings and lateral propellers is the answer to cost-efficient, fast and safe flight. The company—working with 40 partners in 13 countries as part of the European Clean Sky 2 project—recently submitted key subsystems of the demonstrator to a preliminary design review, and the first components are being manufactured. The demonstrator will be assembled by the end of 2019, with a first flight the following year. ✨

**AIRBUS**  
airbus.com



## CityAirbus

Airbus firmly believes in the potential of air mobility to transform our cities for the better. By pushing the limits of technology in the fields of connectivity, artificial intelligence, autonomous systems and electric propulsion, the company's aim is to develop sustainable mobility systems that bring minimum environmental impact and maximum societal benefit.

To this end, Airbus is harnessing its expertise across the company to develop solutions, such as Vahana and CityAirbus, that will help ease urban congestion and offer viable alternatives to connect cities and regions. CityAirbus is a four-seater, electrically powered, eight-rotor aircraft that can take off and land vertically and is designed to transport up to four passengers to major destinations in large cities via fixed routes, such as from the city center to the airport. The first run of the electrical systems took place in October 2018, with the first flight anticipated early in 2019.

- Greater connectivity will leverage the value of data for safer and more efficient operations. The wireless Airborne Communication System (wACS) installed in the H145 will allow customers to exchange data seamlessly. The monitoring of the helicopter's systems in real-time is enhanced by the secure transmission of the helicopter and mission data. Customers can choose to retrofit their previous H145 with the new rotor

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# PUBLISHERS' message

Welcome again to *Insight* Magazine. Thank you for joining us here in the pages of the helicopter industry's only advertiser-focused publication.

We're excited to be with you at HAI Heli-Expo 2019 in Atlanta, Georgia, for the industry's annual showcase event. We hope you find our showcase of helicopter companies equally valuable.

As you thumb through the pages in your hands, or click through the digital version of *Insight*, you'll immediately notice the qualities and standards that have made each of MHM Publishing's other titles (*Vertical*, *Vertical 911*, *Skies* and *RCAF Today*) the leaders in their respective aviation sectors. The writing is insightful and top-notch, the photos are distinctive and visually stunning, and the layouts set a new standard in magazine design.

Collectively, *Insight's* strengths ensure that every profile featured here provides a unique perspective on a key company in the helicopter industry—in a way that neither an ad nor a press release can provide. It's advertising that's worth reading.

This is especially valuable for smaller rotorcraft companies, who don't usually get coverage in show dailies and often can't afford the premium prices found in many traditional print publications. However, *Insight* is equally effective for larger companies, who have a chance to supplement and support their other marketing efforts and reach an audience primed for their message.

From major OEMs and other industry stalwarts, to up-and-coming businesses, we feature a cross-section of every size and type of helicopter company. Manufacturers, MROs, operators,

software providers, accessory makers—they're all here in *Insight*.

In this Heli-Expo 2019 edition, you'll not only read exclusive announcements from industry giants like Airbus Helicopters, Leonardo Helicopters and Pratt & Whitney Canada, but you'll also get the latest updates, forecasts and strategies from key players such as AeroBrigham and StandardAero. In addition, you'll get a chance to find out about several groundbreaking new products and services from the kind of innovative companies that keep the helicopter industry moving forward.

From the content to the look, this is a magazine you'll be proud to have on your coffee table or boardroom table, and that you'll want to keep on your bookshelves or in your literature archives. That's not by accident: *Insight* is part of a stable of award-winning publications from MHM Publishing, the world's leading independent aviation publishing company. MHM is a family owned and run group that has been dedicated to providing transformational coverage of rotary- and fixed-wing markets for almost two decades.

Through good times and bad, MHM remains committed to the aviation industry and to finding new and better ways to report on and connect each sector with their target markets. *Insight* is the vehicle we created to ensure companies have a chance to be seen and heard at the industry's major trade shows. From Heli-Expo and Helitech, to AMTC, NBAA and HAC, *Insight* provides an affordable

and unique way for advertisers to reach trade show audiences. Give us a try; we think you'll be pleasantly surprised at the value you get in return.

In the meantime, please enjoy our Heli-Expo 2019 issue, and email us directly at [mike@mhmpub.com](mailto:mike@mhmpub.com) with any feedback you'd like to share. If you are at Heli-Expo, stop by Booth No. B3818 and talk to us in person.

If you like what you see, call us to secure your place in the Helitech International issue of *Insight*. We're already hard at work finding ways to make that next issue bigger and better than ever! ✨

*Mike Reyno  
Linda Reyno*

Mike & Linda Reyno  
Owners/Publishers, *Insight*  
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# Six.

It's a **pretty simple** number.

But for *Vertical*, it represents excellence in our industry. **Six** is the number of times **our editors** and **contributors** have won HAI's Excellence in Communications award.

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# TO BE A BETTER COMPANY

EVERY DAY

PRECISION AVIATION GROUP PROVIDES UNMATCHED CUSTOMER SERVICE BY PROVIDING LOCAL SUPPORT IN LOCATIONS AROUND THE WORLD.

BY BEN FORREST

A little more than a year ago, Precision Aviation Group (PAG) opened a new 3,500-square-foot (325-square-meter) maintenance facility at Seletar Airport in Singapore and saw it do very well in its first full year of operation.

That facility, located near the island nation's northern coast, provides 24/7 inventory-supported maintenance, repair and overhaul (MRO) to helicopter fleets in the Asia-Pacific region, along with a suite of other services.

"That kind of personifies who we are and what we do," said David Mast, president and chief executive officer of PAG. "One of our core philosophies is 'Global Presence, Local Support.' It allows us to combine all the capabilities

of all our locations, but be local where our customers are. And it really resonates in the rotorcraft space."

PAG is headquartered in Atlanta, Georgia, but has nine locations around the world, providing round-the-clock MRO support to both rotary- and fixed-wing customers.

The new Singapore facility is expected to become a U.S. Federal Aviation Administration repair station in 2019, the latest stage of an ambitious growth strategy aimed at making PAG a better company by expanding its global reach.

"We want to be a better company every day," said Mast. "That's in terms of employer of choice; that's in terms of efficiency, good stewards and a

growing, successful business. And part of that philosophy is really focusing on how do we better serve our customers."

PAG saw record throughput at its maintenance facilities in 2018, with a 15-percent year-over-year increase across the board. It also vastly expanded its rotatable pool, spending US\$2 million on parts in the last six months of the year alone. PAG's revenues grew to over \$150 million in 2018 and Mast's goal is to post at least \$300 million in annual revenue by 2025.

"We want to be the supplier of choice to people that operate turbine-powered aircraft—fixed- and rotary-wing—and to have a growing global presence," said Mast. "There's a lot of white space,

globally, to expand our footprint."

A driving force behind PAG's growth has been the financial resources of private equity partners, now backed by GenNx360 Capital Partners, a New York based private equity firm that invested in PAG last year.

GenNx360 was co-founded by Lloyd G. Trotter, former vice chair of General Electric and former president and CEO of GE Industrial.

"Having a very strong financial partner that [understands] our space, like GenNx360, is invaluable," said Ketan Desai, VP of sales and marketing for PAG. "They've been very quick to say, 'Go do it.' If we want to buy \$2 million in rotatable components or an aircraft—we





have a quick call and they approve it. So, that allows us to have a competitive edge against any of our competition that doesn't have that flexibility or the capital available to them within a 24-hour period. We're really excited about being partnered with GenNx . . . they've been great partners for us and our business."

Another major development in the last year was PAG's new status as an authorized distributor and service center for UTAS/Collins Aerospace helicopter servos in North America.

"Having the ability to own inventory that certain OEMs may not always have readily available is something that we are always looking for," said Desai.

"We want to continue to provide

a level of service to customers that nobody else does, consistently day in and day out," he added. "That's what drives this business . . . the level of service is what differentiates us from all of our competition."

Though PAG was formed in 1996, its roots in the helicopter industry stretch back even further, to the founding of its predecessor company, Precision Heliparts (PHP), in 1993. PHP remains a key brand within PAG, with locations in Atlanta; Brisbane, Australia; Lafayette, Louisiana; Sao Paulo, Brazil; Singapore; and Vancouver, British Columbia.

"A large portion of our business is dedicated exclusively to the support of rotary-wing aircraft," noted Desai.

In the year ahead, PAG plans to follow the path it has been on for the last quarter-century, bolstered by a larger capital budget that allows it to supercharge some of its goals. PAG will focus on building efficiencies into the business, developing an integrated used-serviceable-material program and expanding its designated-engineering-representative repair presence, said Mast.

"We are a business that never says no to our customers," he said. "A lot of people say that, but we are at 24/7/365 global business, and when we say that, we mean it."

"When you have your best salespeople here on a Saturday night

at two in the morning, shipping parts to our customers, [it's] because we believe it's our job each and every day to provide those parts to the utmost efficiency to keep our customers' aircraft in the air. It's not something that's just words on a page. It's what we speak and believe." ✈



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SET A WORLD-CLASS  
STANDARD. BUT IT IS  
NOT FINISHED YET.

**BY GRAHAM CHANDLER**





“By maximizing the talents of our skilled workforce and building a more efficient operational model, we can provide our customers with an even higher level of customer service, with improved turnaround times and specialized, product-centric support.”

— Rick Stine, president of StandardAero components, helicopters and accessories



In May 2018, StandardAero announced the creation of dedicated centers of excellence, two of which aim to further strengthen the company's helicopter engine and airframe MRO (maintenance, repair and overhaul) businesses. The move is designed to provide efficiency by eliminating duplicate operations and bringing together like products and highly experienced technicians. It also allows for better allocation of engineering, testing and technology investments to focus on growth areas that will deliver a more holistic support solution for operators.

“By maximizing the talents of our skilled workforce and building a more efficient operational model, we can provide our customers with an even higher level of customer service, with improved turnaround times and specialized, product-centric support,” said Rick Stine, president of StandardAero components, helicopters and accessories.

### CENTER OF EXCELLENCE FOR HELICOPTER ENGINE MRO

StandardAero's longstanding Winnipeg, Manitoba, facility is expanding and rebranding as the dedicated Center of Excellence for Helicopter Engine MRO. Full-service Rolls-Royce M250 engine support has already transitioned seamlessly to the site, consolidating operations previously duplicated in Richmond, British Columbia.

With over 50 years of experience on the engine, StandardAero is one of just 10 Rolls-Royce M250 authorized MRO centers globally. It also provides MRO support for the Rolls-Royce RR300 engine. Steady, dependable engine service

is a hallmark of the company. This year, StandardAero celebrates its silver anniversary of supporting the Safran Arriel engine series, with 25 years of MRO experience on the type. Additionally, StandardAero has been an OEM-authorized MRO provider for the Pratt & Whitney Canada (P&WC) PT6T engine series for more than a quarter-century. As a P&WC designated overhaul facility, StandardAero supports civil and military customers globally, including serving as the primary repair and overhaul provider for the variant powering the Canadian Armed Forces' CH-146 Griffon helicopters (military Bell 412s).

As the Winnipeg center of excellence continues to expand its consolidated offerings, both Safran Arriel 1 and Arriel 2, and P&WC PT6T engine lines have begun transitioning. Both lines should be fully operational at the new location later this year.

In addition to these lines, StandardAero boasts a more than 40-year partnership with GE in supporting both legacy and current engine types. The company currently provides MRO for the GE CT7/T700 engine and is proud to have been appointed as the first independent authorized service provider for the type in 2017.

StandardAero will maintain full-service engine MRO support for the GE CT7/T700 in the greater Vancouver, British Columbia, area at a new location, which will also support Rolls-Royce M250 service center activities; Safran Arriel 1 and 2, and P&WC PT6T field service support; and Airbus Helicopters dynamic component repair. This new location will be fully operational later this year.

### CENTER OF EXCELLENCE FOR HELICOPTER AIRFRAME MRO

StandardAero's newly designated Center of Excellence for Helicopter Airframe MRO is in Langley, British Columbia, which has a rich history of providing airframe maintenance and repair services for several helicopter platforms, including Airbus, Bell and Sikorsky. The new 84,000-square-foot (7,805-square-meter) facility opened in late 2017.

The highly qualified Langley workforce is very experienced: three decades on Airbus Helicopter platforms, and as a Sikorsky customer support center for the S-76 and S-61. The center also holds Transport Canada AMO (approved maintenance organization) designations for many Bell, Airbus, MD and Sikorsky airframe platforms.

That's not all. The Langley center's capabilities encompass structural repairs and modifications, completions, avionics, and specialized equipment installations. A key differentiator for Langley is its world-class engineering team, which has experience developing advanced, cutting-edge STC (supplemental type certificate) solutions for various helicopter platforms across all major helicopter OEMs.

For example, in response to market-driven options for improved helicopter safety on legacy platforms, StandardAero launched its Safecraft portfolio—initially targeting the Airbus AS350 airframe—from its Langley center.

As Rick Stine explained: “In addition to the highly successful crash-resistant fuel tank (CRFT) that serves as the cornerstone of our Safecraft portfolio, additional work is currently being done

on an advanced autopilot system and crashworthy crew and passenger seating, two critical solutions that we believe have the potential to monumentally impact the legacy AS350 helicopter fleet by addressing some of the most prevalent safety concerns facing operators today.”

### TRULY A GLOBAL LEADER

From facilities spanning four continents—in North America, Europe, Asia and Australia—StandardAero offers an array of helicopter engine and airframe MRO services. It has maintenance approvals from civil aviation authorities worldwide, including from Canada, the United States, Europe, Chile, Mexico, Russia, Thailand, China and Singapore.

And, after more than 100 deliveries to date, StandardAero is poised to go global and deliver the first AS350 crash-resistant fuel tanks to European and Australian customers in early 2019.

As its reach expands internationally and the centers of excellence continue to progress, customers can keep relying on StandardAero for the same quality support they have come to expect over the years. However, they can also look forward to more comprehensive support and improved customer service.

“For StandardAero,” said Stine, “expanding our capabilities and global reach, maximizing our skilled workforce, and implementing improvements to our already industry-leading operational efficiency, all of these changes center on one primary purpose—delivering second-to-none MRO solutions and customer service to our valued customers in the helicopter industry.”



# From WISH List to REALITY

THE BELL 407 THAT AEROBRIGHAM OUTFITTED FOR THE MARION COUNTY SHERIFF'S OFFICE ABLY SHOWCASES THE COMPANY'S ABILITY TO PROVIDE INNOVATIVE SOLUTIONS FOR COMPLEX MULTI-ROLE AIRCRAFT.

BY CHRIS THATCHER



## 🔧 Maintenance

## ✈️ Completions

## ★ Refurbishment

## 🖌️ Paint

## ⚙️ Interiors

When the scope of work first popped up on his computer, David Brigham admits his initial response was one of surprise. The list of modifications that the Marion County Sheriff's Office (MCSO) wanted for the completion of a Bell 407 ran over several pages and covered more than 70 items.

AeroBrigham specializes in tailored completions and refurbishments. Whether a customer needs it, wants it or merely hopes for it, the Decatur, Texas, company has built its reputation on making that list a reality.

"We don't do much in the way of cookie-cutter aircraft," said Brigham, president and co-owner. However,

even this seemed a little daunting to the aircraft completions veteran.

The MCSO provides a wide range of services, including air patrol, search and rescue, special-incident response, firefighting, and marine services. What they required was a complex, fully integrated, multi-mission aircraft.

Among the many features detailed on MCSO's spreadsheet were high-visibility crew door windows; a rescue hoist and camera; floats; a cargo hook; a Bambi Bucket for water drops; and a 3,000-pound, 50-foot (1,360-kilogram, 15-meter) line.

For the cockpit, there was a host of new avionics. This included

dual Garmin GTN 650s; Garmin G500 electronic flight display with hoist camera and FLIR/map video integrated for the pilot; Northern Airborne Technology audio panels; Technisonic TDFM-9100 multi-band airborne FM transceiver; two large 12- and 15-inch mission displays with integrated moving maps and keyboards; FLIR Systems Star Safire 380-HDc high-definition multi-spectral imaging system; and a Churchill navigation system with full Wi-Fi access, computer-aided dispatch and video streaming interfaced with the camera and navigation system. All of this was to be connected to a Serastar

beyond-line-of-sight downlink system operating on a 4G LTE network—"the first of its kind in any civilian aircraft," said Brigham.

And that was just a fraction of the wish list.

The cabin required an aft tactical-flight-officer station with the same capabilities as the cockpit, including a 15-inch Macro-Blue monitor, Technisonic RC-9100 remote control head, audio panel and keyboard. Redundancy was a requirement throughout so the aircrew could control sensors, the camera, hoist and other systems from the front or rear of the aircraft.



"We gave them everything in the aircraft they could have possibly wished for and then some, and we stayed within their original budget," Brigham recalled of the project that began in October 2017 and which the customer received by February 2018.

Although AeroBrigham was formed only four years ago by David and his brother Danny, the duo previously owned United Rotorcraft Solutions. Their experienced team has customized numerous aircraft for law enforcement, emergency medical service (EMS), search and rescue, and corporate customers from the company's 15,000-square-foot (1,395-square-meter) hangar at the Decatur Municipal Airport.

However, MCSO's Bell 407 presented a unique challenge.

"Pretty much every completion we

do is a one-off. Customers often want things that have never been done before," said Brigham. "But the level of complexity on this was pretty intense. Just physically being able to shoehorn everything into the aircraft was a big challenge. But it was a fun challenge."

While fitting the numerous components into the cockpit and cabin of the 407 without exceeding weight restrictions posed a significant puzzle, ensuring all the different systems from the various manufacturers communicated and functioned as the MCSO required seemed an even greater challenge.

"That was a bit of a daunting task," acknowledged Brigham. "Thankfully, all the systems work well together, so it wasn't that difficult a project once we got into it."

However, to ensure full redundancy in both the front and rear of the aircraft, AeroBrigham installed two Atom computers to power the Churchill nav system, "something Churchill has never done before," he said.

While the completed helicopter ended up a few hundred pounds lighter than the average EMS aircraft, "There is literally no room anywhere for even the smallest piece of avionics, unless you start putting it in the baggage compartment," said Brigham.

"Our goal with this project became to provide them with the absolute best tool anybody in law enforcement could have."

It would appear Brigham's team have succeeded. A year after entering service, the Bell 407 has accumulated almost 400 flying hours and become a showpiece for both AeroBrigham and

the Marion County Sheriff's Office.

"They absolutely love the helicopter," said Brigham. "They have people from all over the country coming to their facility to see how they have integrated it and whether it can be emulated elsewhere."

No matter the make or model, AeroBrigham has proven it can turn any list of needs, wants or even wishes into reality. ✨



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# Clear Communication, **Comfortable Fit**

THE BOSE A20 AVIATION HEADSET COMBINES IMPRESSIVE NOISE REDUCTION AND CLEAR COMMUNICATION WITH A COMFORTABLE FIT FOR HOURS ON END.

BY JAMES CARELESS | PHOTOS COURTESY OF BOSE



"Our customers routinely tell us the A20 is not only one of the quietest but also one of the most comfortable headsets they have ever worn."

— Hratch Astarjian, manager of global aviation sales, marketing and service

Pilots demand two things from their headsets. First, these units have to provide audio that is clear at all times, no matter how noisy the aircraft environment may be. Second, since aviation headsets have to be worn for many hours at a time, they must be comfortable to wear for the long run.

As one of the world's premier audio equipment companies, it only makes sense that Bose would tackle the aviation headset challenge, and resolve it brilliantly with the A20.

Weighing in at just 12.5 ounces (354 grams), the A20 is designed to provide the most noise reduction ever offered by a Bose aviation headset, while still providing the clearest audio possible through the use of active equalization and other technologies. Compared to traditional headsets offered by competitors, the A20 provides 30 percent more noise reduction while exerting 30 percent less clamping force on the wearer's head.

Comfort is enhanced by the A20 having a torsion spring in the middle of the headband. This ensures that the headset sits comfortably on the user's head and distributes the clamping force evenly. It also ensures that lateral pressure is consistent, regardless of the size and shape of one's head.

That's not all: The Bose A20 aviation headset also offers features such as Bluetooth audio and communications interface; a customizable audio prioritization control that enables either the muting of existing audio for incoming communication, or mixing that new audio with the existing audio feed; intuitive "plug-and-play" operation for easy use in all kinds of aircraft; a high-performance adjustable noise rejection boom microphone; and an optional coil cord, popular with helicopter pilots. The coil cord version, which provides the cable management that helicopter operators often prefer, can be ordered with the most popular helicopter-specific connectors.

"Our most current product, the A20 aviation headset, is the best performing aviation headset we have ever brought to market," said Hratch Astarjian, Bose Corporation's manager of global aviation sales, marketing and service. "It provides more noise reduction in louder environments over a broader range of frequencies than our previous model and does so in a very comfortable and

easy-to-use way. It also has the features pilots have told us are important, like full-function Bluetooth, a coil cord cable, auto-on (for panel-powered models), auto shut-off, and audio prioritization."

The A20 is the latest in the company's long line of quality aviation headsets.

"Bose was the first company to bring a commercially available, active noise reduction headset to the market in 1989," said Astarjian. "As we have developed meaningful new technologies over the years, we have brought new headsets that incorporate those improvements to the market."

Due to the combined noise from engines, wind rushing by at high speeds and other operational sources, helicopters are generally noisy places. This is why pilots need headsets that reduce their exposure to loud ambient noise by actively analyzing that noise and then electronically negating it before it reaches their ear drums.

"But contrary to what you might think, noise isn't the first thing most pilots complain about," said Astarjian. "It's comfort. There are many noise reduction headsets on the market today, with some, like the A20, that do a good job of reducing noise. But, unfortunately, most of them trade comfort for quiet. The challenge is to deliver a headset that does a great job with noise reduction, while remaining comfortable over the long haul."

For that, the Bose A20 is the clear choice. It has been specifically designed to cancel noise while maximizing user comfort, without the traditional trade-offs or compromises.

"Our customers routinely tell us the A20 is not only one of the quietest but also one of the most comfortable headsets they have ever worn," said Astarjian. "That's really satisfying to hear because comfort is one of the design elements we pay close attention to."

"There are a wide variety of reasons pilots tell us they

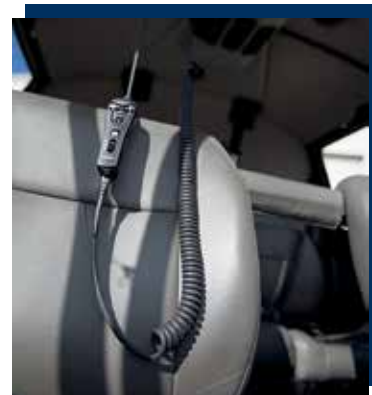
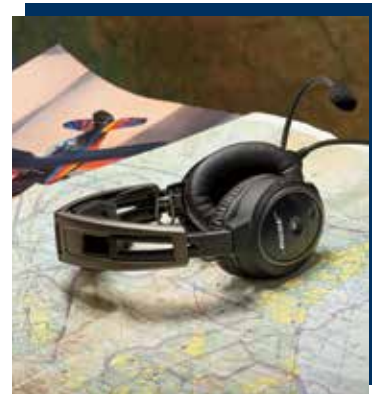
prefer our product," he added. "These range from comfort to audio clarity to having the right features that add to the flying experience in a meaningful way."

Bose's success in making aviation headsets is borne out by its other specialty headsets made for other markets where noise reduction and clarity are also top priorities. These markets include the National Football League's noisy playing fields for coaches; the U.S. and other militaries in a variety of tracked and wheeled, armored vehicles; and in the air on Lockheed Martin C-130 Hercules aircraft, Boeing P-8s and KC-135s, and others. Bose also has strong relationships with the some of largest helicopter original equipment manufacturers in the world, including Bell Helicopter, Leonardo (formerly AgustaWestland), Airbus Helicopters and Robinson Helicopter Co.

The bottom line: The A20 aviation headset is the kind of quality equipment every pilot needs in their cockpit, be it inside a Robinson R44, a Bell 407, a Cessna 172 or a Boeing 757.

"Bose has been providing products for mission-critical communications for over 25 years and, it seems, our customers really value that," said Astarjian.

"The result is that customers can feel confident that the A20 will do what we claim. We don't over-promise and we focus on what really matters to pilots; namely clear communication, comfort, less noise and, ultimately, a durable and reliable product that will enhance the flying experience for years."



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# THE

# Helitrades

# WAY



OVER THE LAST 40 YEARS, HELITRADES HAS BUILT AND MAINTAINED A LOYAL CUSTOMER BASE FOR ITS STRUCTURAL REPAIRS, FIELD MAINTENANCE, AND DYNAMIC AND HYDRAULIC COMPONENT OVERHAULS.

**BY DAYNA FEDY // PHOTOS BY PETER HANDLEY**



For 40 years, Helitrades has been providing structural repairs, field maintenance, and dynamic and hydraulic component overhauls for its loyal customer base of helicopter owners and operators. Over this time, it has built a reputation for delivering its services on time and with care, with an average lead time of just one to three weeks.

The company was established in 1979, and today has a staff of 19, with facilities in Vankleek Hill, Ontario; Alliston, Ontario; and Airdrie, Alberta.

"We do a lot of hydraulic repair and overhauls," said Gerald Tom, Helitrades' president and owner. "We're a Bell service center, and we also do overhauls on transmissions for [Bell aircraft]."

Helitrades focuses primarily on servicing Bell models, but recently gained the ability to service the Robinson R22 and R44 at its Alliston and Vankleek Hill facilities.

The company's Vankleek Hill location is a Bell-approved customer service facility for component overhauls on the Bell 205, 206, 206L, 212, 407 and 412. This location also offers field maintenance on the Bell 412.

Established with a commitment to service at the forefront, Helitrades has been passed down through generations of the Tom family with that commitment intact.

Tom's father founded the company and spent 16 years building it before he retired in 1995 and passed the torch to Tom. Helitrades has continued to thrive ever since.

### SERVING MANY

Helitrades provides repairs and overhauls for aircraft belonging to the Canadian Armed Forces, the Canadian Coast Guard, and other commercial and government

which creates an abundance of service opportunities.

"The reason we don't get as many [customers] from the United States is because they seem to be pretty loyal to going to [facilities] that are already down there," said Tom. "But that may change in the future."

Helitrades' extensive capabilities have led it to provide services for oil companies in the Middle East. Tom said the company supplies spare parts for Bell aircraft to these companies, and it often receives aircraft components from overseas customers that require hydraulic repairs.

### UNIQUE CAPABILITIES

The majority of Helitrades' services consist of hydraulic component overhauls.

Since many Bell helicopter models feature hydraulic components manufactured by Woodward HRT Inc., Helitrades decided to become a Woodward HRT-approved facility, making it one of only a few companies that can perform maintenance and overhauls on these components.

"There are only two of us in North America, so we get quite a bit of volume because of that," said Tom. The company will see HRT hydraulic components from Bell 204, 205, 206, 206L, 212, 407, 412 and 427 aircraft go through its facilities.

Three years ago, Tom and the company purchased Uscan Aviation Sales—a sales, overhaul and major repair facility in Alliston that also specializes in Bell helicopters.

"We wanted to expand our Bell capabilities further, and [Uscan] seemed to be the best way to go," said Tom. "It was cost-effective to buy the equipment used rather than buying new."

as well as services for the R22 and R44; Helitrades' structural repair services have been relocated to Vankleek Hill.

Though it focuses mainly on helicopter components, Helitrades will sometimes see entire aircraft go through its facilities. At the beginning of last year, the company received a request from the government of Maine to perform a structural repair on a Bell 206, which was completed in February 2018.

Having the appropriate structural repair approvals from Bell made Helitrades the right candidate for the job. Tom said the low Canadian dollar is also an added bonus for helicopter operators in the U.S. who are looking for the types of services Helitrades offers.

For its Canadian customers, the company does its best to offer cost-effective services with quality results.

"Being a small owner-operated business, we can be more flexible on pricing than larger companies," said Tom. "Quality is always first, but next [to that], very close, is pricing." For Helitrades, these are the two key factors it has found customers value most.

For the last 40 years, Helitrades has stuck with what it knows best: Bell helicopters. And its employees have become specialists on the OEM's rotorcraft. However, broadening the scope of aircraft isn't entirely out of the question; if an opportunity to expand presents itself, it would be a plausible option, Tom said.

Meanwhile, Helitrades is gearing up for its 40-year anniversary in 2019—a remarkable milestone for any business.

When *Insight* asked Tom what he believes is the secret to success, he replied: "Quality . . . quality is the main thing, and always coming through on what we promise to do." ✦



operators in various parts of the world.

With its facilities located solely in Canada, it's no surprise the majority of Helitrades' business comes from Canadian helicopter operators. There have been roughly 4,900 Bell aircraft manufactured in Canada and roughly 1,000 Bell helicopters operating in the country,

The move allowed the company to carry out structural repairs for Bell aircraft, including main cabin and tailboom structural repairs for Bell 205, 206 series, 212, 407 and 412 helicopters.

Uscan is now rebranded under the Helitrades name, and its Alliston facility focuses mainly on field maintenance for Bell models,



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# ESSENTIAL FOR THE MISSION

RHOTHETA CONTINUES TO LEAD THE MARKET WITH THE NEWEST RADIO DIRECTION FINDING (RDF) TECHNOLOGY.

**BY GRAHAM CHANDLER**

When RHOTHETA International, a radio direction finding (RDF) and location systems developer, started operations in 1989, its specialty was air traffic control (ATC) products. Its initial development was the RT-1000 direction finder system for ATC and vessel traffic services applications, which proved a winner with over 100 systems deployed worldwide.

That success led to frequent requests for direction-finder systems for search-and-rescue (SAR) helicopters and fixed-wing aircraft applications.

At the time, direction-finding technology was evolving to new-generation, lighter and



“These features make it fitting for a number of applications where dimensions and weight are of the essence. Aircraft, drones, manpacks, vessels, towers . . . we fit quite well in all these applications.”

— Ventura Rigol, president and GM



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more compact components. The company spotted a market niche: RDF solutions for aircraft, drone and ground SAR, and public-safety applications. These products are based on the Doppler method and are capable of receiving, calculating bearing, and decoding analog and digital radio transmissions in VHF and UHF bands.

Ventura Rigol, RHOTHETA's president and general manager, said the new technology is a significant breakthrough.

"It is still called RDF, but that's associated with old technology," he said. "You no longer have an antenna and an ordinary receiver with RF cables everywhere. We have gone beyond that. The lightweight (4.4-pound/2-kilogram) white antenna-receiver unit you see mounted underneath the helicopters—is and also now on drones (2.85 pounds)—is the complete RDF system."

The white housing itself is the physical antenna element. It's scanned in four different points, not mechanically but electrically. With a three-kilohertz period,

it scans the four directions, simulating four physical antennas.

Also inside the antenna-receiver unit is the broadband receiver, covering 118 to 470 megahertz (MHz). A central processing unit does all the processing: all algorithms that calculate the Doppler, all the averaging and the electrical rotations of the antenna.

"These features make it fitting for a number of applications where dimensions and weight are of the essence," said Rigol. "Aircraft, drones, manpacks, vessels, towers . . . we fit quite well in all these applications."

In 2009, RHOTHETA launched the airborne RT-600 series with multifunction and wideband capabilities in a single system: 118 to 470 MHz operational frequency range; Cospas-Sarsat channels, including beacon IDs and latitude-longitude location data, LoJack and ETS; and other public-safety-type signals.

Designed for all aircraft, the RT-600 is available in two versions: "A" for SAR applications and "L" for combined SAR/

law enforcement and public-safety applications. The L-version has LoJack, ETS and medical beacon capabilities. "It builds on the functionality of the A-system," said Rigol. "If you are just in the SAR business, the A-version is all you need. For law enforcement and public safety, the L-version is the one for you."

Both versions are lightweight and easily installed. Acquisition and installation costs are reasonable and designed for any budget.

The RT-600 is used by the United States Air Force Auxiliary—Civil Air Patrol, as well as law enforcement airborne units such as the Los Angeles County Sheriff's Department, California Highway Patrol and Texas Department of Public Safety. It has been proven to enhance the SAR mission, where saving even minutes can be critical when locating and rescuing injured persons within the "golden hour."

It has also proven instrumental in locating downed aircraft; disabled,

sinking or capsized vessels; lost or injured hikers; and in LoJack stolen car recovery. The RT-600 is a "mission must" that will save not only lives but also time and money by reducing overall search time when compared to conventional SAR methods.

RHOTHETA's newest variation is the RT-600 Light, a lighter-weight version of the antenna unit that can be mounted on drones—which provides rescuers with a height and range advantage.

"It's like putting the antenna on a high tower," said Alex Collantes, head of product support and sales engineering. "You have a much better range, increasing by several miles as the drone ascends."

The result is less time spent searching and faster rescue or recovery. Links to devices on the ground can be via Wi-Fi or VHF/UHF data link.

The drone application has already proven popular. Rigol said dozens of drones with RDFs have been deployed in the last two years, including some with the Civil Aviation Administration of China.

"SAR operators carry the drones in a truck and deploy them vertically," he said. "They go up to 200 feet, and it does miracles to overcome line-of-sight obstructions."

RHOTHETA's RT-400, meanwhile, is an advanced multi-band RDF and location system designed for portable SAR and surveillance applications in manpack and vehicle configurations. The antenna unit is connected over Wi-Fi with the SAR operator's tablet. It has GPS and compass capabilities, and runs DF Scout, an Android moving map app, eliminating the need for a separate display control unit.

"An advantage common to all RHOTHETA solutions is the price-to-performance ratio," said Rigol. "All are top-quality commercial-off-the-shelf products. And our ultimate edge is fitting in all SAR platforms: manned aircraft, drones, vessels, vehicles and manpacks."

What's next for RHOTHETA?

Rigol said the company will be building AIS (automatic identification system) functionality into its antenna units. Some models will also incorporate Wi-Fi, GPS and compass functionality.

Also coming is wideband DSSS (direct-sequence spread spectrum) capability in compliance with the satellite-based Cospas-Sarsat Phase 2 and second-generation beacons.

"All these technologies and more will be coming into our next-generation products," said Rigol. ❖





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# Onward & UPWARD

TO MEET THE  
NEEDS OF ITS  
HELICOPTER  
CUSTOMERS,  
DUNCAN AVIATION  
HAS VASTLY  
EXPANDED ITS  
CAPABILITIES AND  
PARTS INVENTORY.

BY BEN FORREST

In 2016, when Duncan Aviation exhibited at Heli-Expo for the first time, a long-time fixed-wing customer stopped by the booth and admitted his surprise.

Although Duncan Aviation had been serving the helicopter industry with component services since the mid-1980s, it was better known as the world's largest privately owned business-jet support facility.

"We had been servicing his business jets for years," recalled Kevin Miesbach, manager of components and OEM business development at Duncan Aviation. "He was very pleased to learn we were also able to support his helicopter fleet with avionics, instruments and accessories services."

Since that first appearance at Heli-Expo three years ago, Duncan Aviation has experienced more than 80 percent growth in its helicopter business. It is now recognized as a reliable resource for rotary-wing component maintenance, repair and overhaul (MRO) services.

"It doesn't matter what type of aircraft we're supporting," said Miesbach, who has been with the family-owned company for 37 years. "If it's avionics, instruments, accessories or even piece parts, we try to support the aviation industry in general."

By listening to its customers and responding to their specific requests at shows like Heli-Expo, the company has been able to drive remarkable growth on the helicopter side.

To support that, Duncan Aviation has significantly expanded its rotary-wing inventory. Avidyne traffic indicators and legacy General Electric gyroscopes are now among its rotary-wing offerings. So, too, are Technisonic FM radios and Northern Airborne Technology equipment for special-mission helicopters.

The company can also now modify Collins Aerospace TDR-94 transponders to ensure they comply with ADS-B (Automatic Dependent Surveillance-Broadcast) standards.

Other new rotary-wing inventory items include starter-generators, fuel pumps,

converters, weather radar equipment, hydraulic pumps, hydraulic actuators and emergency power supplies.

"We continue to expand on that inventory upon request," said Miesbach.

Chris Gress, manager of parts & rotables sales and business development, then talked about the other advantages Duncan Aviation provides: "One of our biggest strengths is being able to offer our customers options specific to their situations. We have customers who come to us from all corners of the globe. With 10 international sign-off certifications, including CAAC [Civil Aviation Administration of China] for Chinese registered aircraft, we can have parts and components serviced or exchanged immediately and without hassle." Many other companies cannot offer this service.

Duncan Aviation is also one of only four service centers in the United States for BendixKing products, which are prevalent in Sikorsky and Bell helicopters.

Duncan Aviation traces its history back to 1956 when Donald Duncan became a Beechcraft distributor. Today, the company has three major MRO facilities—in Battle Creek, Michigan; Lincoln, Nebraska; and Provo, Utah—plus a network of avionics satellite and engine rapid response locations across the U.S.

As the fourth generation of the Duncan family joins the company, it continues to operate with a personal, small-town feel. However, its reach is broad and diverse, and its service is world-class.

The days of Duncan Aviation's helicopter repairs flying under the radar are likely over as its rotary-wing business continues to grow in size and profile.

"We know this equipment inside and out," said Gress, who's been with Duncan Aviation for 35 years. "Customers are recognizing our experience and telling us they are getting the best repairs in the market." ✦



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"One of our biggest strengths is being able to offer our customers options specific to their situations. We have customers who come to us from all corners of the globe."

— Chris Gress, manager of parts & rotables sales and business development



**HELISPEED** HAS  
ALL THE RIGHT  
RESOURCES  
TO SUPPORT  
HELICOPTER  
OPERATORS  
IN NEED OF  
FLEXIBLE PILOT  
STAFFING.



# A SIMPLE SOLUTION



Flexibility, controllability and efficiency—these are the fundamentals HeliSpeed focuses on to improve pilot staffing on a global scale.

Based in Blackpool, England, HeliSpeed has been operating its HeliTrax system for the past three years to provide helicopter operators with an effective platform to fulfill their flexible pilot staffing needs.

With more than 700 pilots in 56 different countries (all vetted and

approved), HeliSpeed uses the HeliTrax system to locate the pilot closest to a requested job. The supplied pilot will have the correct mission profile experience and type rating, eliminating the need for the customer to search for the right pilot.

"A customer can log on [to the HeliTrax system] from anywhere in the world and request a pilot for a day, or however long their requirement is for, on practically every helicopter platform and any mission profile they need," said

Geoff Packer, CEO of HeliSpeed.

"The approved pilot will be allocated for the required period of time, and then they will depart."

The HeliTrax system is a simple solution for operators who have reduced their pilot pool down to a minimum to avoid over-staffing, but are in need of more flexibility in their pilot supply when a temporary or new short-term contract arises.

But when taking care of customers, HeliSpeed goes beyond supplying pilots.



For example, "When performing a ferry flight for a customer we support all aspects and logistics: sourcing the fuel, landing fees and clearances, handling agents, and of course, the supply of the pilot—a turnkey solution," said Packer.

With convenience at the forefront, the HeliTrax system allows pilots to track and record everything from the beginning to the end of a job, including the fuel burned, the routing, when the aircraft took off, when it landed and if there were any defects while performing the flight.

All the information is uploaded to the

consulting firm Alexandre Dhanwant Associates, partnered with HeliSpeed to strengthen the business side of the system.

"[Larry] looks at it from a business perspective, and I look at it from a piloting perspective," said Packer. "I know exactly the way the pilots work, and I know all the rules and regulations. We actually meet in the middle very well."

Alexandre described the HeliTrax system as a two-pronged approach that supports helicopter operators by fulfilling their needs, while also supporting pilots by giving them opportunities to fly when off contract.

"What I like about HeliSpeed is it's very customer-centric, and resembles what we see in the 'gig economy'—think of Uber or Airbnb," said Alexandre. "It's giving the flexibility to helicopter owners or operators to have access to a resource without owning it."

## GETTING IT RIGHT

HeliSpeed has carefully crafted the HeliTrax system to ensure no information is missed during the application process for pilots who want to be included in the HeliTrax database.

The company vets all information that is entered into the system, which is non-volatile, as data put into the system cannot be overwritten. License history and information updates are recorded and then approved by both the pilot and HeliSpeed before being visible to the customer.

"We have information on the pilots from total hours and CVs, to pilot experience," said Packer. "We know if they've got night vision experience, we are aware if they've flown in the Arctic, we know their issuing license authorities, etc. We focus on making certain that the pilots have the experience to meet the customers' requirements."

## AN INDUSTRY GO-TO

The company prides itself in its ability to exceed operators' expectations—providing them with what they need, when they need it.

"A company asks, 'I need a [Bell] 412 pilot who's got night vision experience, who's flown in the Arctic, who's done long-lining and who lives in Canada, and we can find that pilot.'"

Once HeliSpeed allocates a pilot to an operator who has requested a "task," all the operator has to do is review the pilot information and either accept or deny.

HeliSpeed has also entered into agreements with CAE and Helisim to support training for pilots who have



“A customer can log on [to the HeliTrax system] from anywhere in the world and request a pilot for a day, or however long their requirement is for, on practically every helicopter platform and any mission profile they need.”

— Geoff Packer, CEO

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received job offers from HeliSpeed, helping them fly aircraft on which they are either no longer current or require type ratings. This helps to further address the pilot skill shortage.

This capability goes hand-in-hand with HeliSpeed's mission to deliver unmatched piloting solutions to helicopter operators, no matter what the request.

"HeliSpeed provides flex staffing solutions that translate into real flexibility, efficiency and cost savings for operators," concluded Packer. "I can't think of any downside for the industry as it looks for ways to improve its operations, or for pilots who seek to stay busy and do what they love." ✈

cloud, which allows the customer to view it with a smart device.

"Every single person that's involved in the job will be able to view all relevant information in real time," said Packer.

## HONING THE SYSTEM

Roughly one year after the system launched, Larry Alexandre, former president of Heli-One and founder and managing partner of the aviation







# UNIVERSAL Appeal

UNIVERSAL FLIGHT CONCEPTS BRINGS TOGETHER  
FOUR OF THE INDUSTRY'S STRONGEST BRANDS  
UNDER A SINGLE UMBRELLA.

BY BEN FORREST

Dr. Gordon Jiroux began his distinguished career as a flight instructor in 1982, flying and teaching in one of the first Robinson R22s ever used for training purposes.

He progressed quickly, building a company that by 1990 was the largest flight school in the world using R22s, and solidifying a reputation for safe, high-quality flight training.

"Our internal processes and procedures have been carefully designed and continuously refined," said Jiroux, who is now president and chief executive officer of Universal Flight Concepts, a parent company incorporating four of aviation's most reliable brands.

"All current and future companies operating under the Universal Flight Concepts umbrella are operated with safety as the No. 1 priority," he added. "Safety first" dictates everything we do."

Universal Flight Concepts is the parent company of Universal Helicopters, which offers advanced flight training on Robinson R22, R44, R66 and Bell 206 helicopters.

The flight school has locations in

Scottsdale and Prescott, Arizona; Provo, Utah; and Waco and Dallas, Texas.

Also under the parent company's umbrella are Night Flight Concepts, an elite recognized authority in night vision based in Waco, Texas; and Heliwagon, which manufactures the world's only advanced, remote-controlled, wireless landing dolly, a device that makes moving a helicopter as easy as operating a garage door opener.

A new, fourth brand is also launching this winter at Heli-Expo: Universal Fixed-Wing, which will provide airplane flight training to the same exceptional standards as Universal Helicopters.

"Since three of the companies provide flight or aviation training, they all communicate and interact with each other for the best possible solutions," said Jiroux.

"With many of the management staff having different aviation backgrounds, high quality, discriminating

communications between the senior staff of each company is guaranteed.

"Although Heliwagon is not a training provider, with all of us being actual users of the Heliwagon product, we provide continual input with regards to making the units safer and more pilot-friendly."

## TRAINING THE BEST

All of the training companies under Universal Flight Concepts have the same mission: To be the best in the industry, providing safe, high-quality flight and ground training, delivered in state-of-the-art, well-maintained equipment.

Safety is paramount, which is why each of the training companies (along with Heliwagon) share several key values, including integrity, accountability, perseverance, dependability, discipline and hiring only the best employees.

Universal Helicopters only employs its own graduates as instructors, and all of its managers were hand-picked during their training, said Jiroux.

"They all showed qualities that only the best of the best exude. Our selection process has been proven 100 percent reliable."

Indeed, there has been no turnover among senior staff or chief pilots in 18 years, said Jiroux. All managers have

college or university degrees, and all have instrument ratings and flight instructor instrument certificates.

Four of Universal's senior managers are also Federal Aviation Administration (FAA) designated pilot examiners.

"We do not make any decisions based on economics or convenience," said Jiroux.

"These business mantras keep us focused on what is truly important. They continually remind us that the quality of our graduates and products must always come first."

## A NIGHT VISION LEADER

Night Flight Concepts (NFC) is widely known for its comprehensive suite of night vision goggle (NVG) solutions. Some of the most recognized names in helicopter manufacturing trust this company.

Created in 2006, NFC has served more than 300 customers around the world since its founding. It also provides comprehensive NVG instruction, with a range of computer-based, self-paced training and instructor-led courses for both initial and recurrent training.

NFC owns and operates an FAA-approved

"All current and future companies operating under the Universal Flight Concepts umbrella are operated with safety as the No. 1 priority. 'Safety first' dictates everything we do."

— Dr. Gordon Jiroux, president and CEO





Part 145 NVG repair station, which has the authority to conduct and certify the airworthiness of NVG equipment.

The company also manufactures the Laser Armor line of products, which protects pilots from laser strikes during both daytime and nighttime operations.

"At Night Flight Concepts, we implement the highest-quality night vision equipment, maintenance and training procedures available," said Adam Aldous, the company's president. "Our goal is to enhance the safety and operational capabilities of all aviation organizations."

### ONE-OF-A-KIND

Heliwagon is one of the most innovative products to hit the helicopter market in years—a wireless, remote-controlled landing dolly that crews can control from inside the cockpit. It's said to be the most-advanced

mobile landing dolly in the world, eliminating the need for tugs and tows.

The Heliwagon is perfect for light to mid-sized, skid-equipped helicopters. It provides 360-degree "walkaround" capability and 100 percent positive control during aircraft movement on the ground.

"A lot of people tell me it is the coolest thing they have bought outside of their helicopter," said Brad Seibold, president of Heliwagon. "Operators who see one for the first time usually have the same reaction: 'I want one.'"

### NEXT STEPS

Along with the launch of Universal Fixed-Wing, Heli-Expo 2019 will be the

site of several other high-profile announcements that will help plot the parent company's future.

Details are being kept under wraps until the show, but they indicate a company that is continuing to expand while staying true to its mission.

As for Dr. Gordon Jiroux, an industry legend who built the parent company into a global success, he has a clear sense of where he'd like to be 10 years from now: "Exactly where we are today. In the training business, recognized as a leading training provider, with an unquestionable safety record." ✨

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# BUILDING A BETTER ASU

AS ASU BEGINS ITS AMBITIOUS PLANS FOR RE-IMAGINING WHAT IT CAN BECOME AS A COMPANY, IT'S NEW PROCESSES AND WAYS OF DOING BUSINESS HAVE ALREADY BEGUN TO PROVIDE A WEALTH OF BENEFITS FOR CUSTOMERS, PARTNERS AND EVEN THE ENTIRE AVIATION INDUSTRY.

BY AMITAV DASH

For a company with about 60 people, ASU (Aviation Specialties Unlimited) has accomplished an enormous amount in the 24 years since its founding. Its leadership team, however, feels ASU could achieve even more.

As president Jim Winkel explains, this comes from a place of wanting to continue to "push the envelope where technology can be applied to improve people's lives."

Said Winkel: "We're on a growth trajectory. We've got an extensive product portfolio and an excellent customer base. We thought, why not challenge ourselves to see where we can fit with our customers' long-term requirements and how can we drive that conversation."

This outward focus on how ASU can benefit every stakeholder is a unique strength the company intends to continue leveraging. To do that, though, it had to look inward first.

"We looked at how we were communicating our value to our customers," said Winkel. "The first thing we did is integrate our marketing, sales and business development teams, which then led to the establishment of a new customer service team to improve our responsiveness to customer needs."


To further improve each client's experience, and give them the new products they've been asking for, ASU made a significant investment in specialized software. This new system eliminates redundancies and allows information to flow freely throughout the organization. It will be the keystone of ASU's future growth and improvement.

"With the deployment of that software earlier this year," said Winkel, "we have refined our capabilities into one integrated team to ensure that we're meeting our customers' schedule, cost and performance objectives."

These streamlined processes will allow ASU to devote more resources toward developing new products and services—which was the primary driver behind re-imagining ASU.

The company already has several groundbreaking new offerings planned for launch in 2019.

Said Winkel: "We've developed what we believe are the world's lightest-weight aviation night vision goggles [NVGs]. They're currently undergoing qualification testing. The feedback we've received on the prototypes has been extremely positive."



ASU also recently won a development contract from the United States Air Force for a new flight helmet. The company will deliver four prototypes in May. "We believe that our airmen deserve the safest and most advanced helmets," said Winkel, "and we have invested in the team and technology to make that a reality."

The company also just submitted a technical standard order application to the Federal Aviation Administration for its Aeronox™ NVG mount and battery pack. Previously only available to military and public-use operators, once approved, this ruggedized, lighter-weight, repairable product will be available for all users.

As ASU becomes fully re-imagined, Winkel expects innovations like these on a more regular basis. Of course, that shift from reseller to manufacturer presents some interesting challenges, but also provides some unique possibilities.

The company will continue to represent large night-vision OEMs: ASU has taken great care to maintain those relationships while assuming the role of an OEM in developing complementary products. The resulting diverse product and service offering will be paired to meet customers' dynamic needs.

As ASU grows its worldwide presence, it is not only looking for new partners that share its values, but it's helping existing partners grow and transform, as well. It's even looking at sharing some of its goggle service and aircraft NVIS (night vision imaging system) installation duties.

"We're teaching our customers and partners and transferring our know-how," said Winkel. "We want them to do the things we normally do so they can better help their communities, meet local needs and so our partners have more opportunities to create jobs in their regions."

ASU is also hoping these enhanced partnerships can help it continue to champion NVGs in new markets/applications.

One such application is aerial firefighting. The company is attacking this challenge both regionally and globally.

"When we looked at the need for this, we started talking to an operator in South Africa. We've sent one of our regional guys and tech experts there to meet the operator and talk to regulators about safely deploying aerial firefighting assets at night."

At the same time, ASU is consulting with partners in Australia and building a coalition in the U.S. with operators, communities and legislators.

"We want to bring everyone around the table to look at all the concerns. We want to make sure we're doing this safely and smartly."

ASU's efforts in aerial night firefighting encapsulate the company's look forward. Its core focus is still the same, but its desire to be better means the company is continually exploring new opportunities in emerging markets.

"ASU will always be ASU," said Winkel.

"We're never going to stray from our identity—NVG centric. But, as we re-imagine ourselves, I see other technologies coming into play. I see us becoming more of an OEM and further developing our partner network to benefit our customers, partners and the industry as a whole." ❖



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"ASU will always be ASU. We're never going to stray from our identity—NVG centric. But, as we re-imagine ourselves, I see other technologies coming into play. I see us becoming more of an OEM and further developing our partner network to benefit our customers, partners and the industry as a whole."

— Jim Winkel, president



# GOODBYE TO PILOT PAPERWORK

INNOVATION OUT OF NEW ZEALAND

ASKING TIRED PILOTS TO BE ACCURATE ADMINISTRATORS HAS ALWAYS BEEN A STRUGGLE FOR THE AVIATION INDUSTRY. AERONET HAS A SOLUTION.

BY GRAHAM CHANDLER

Imagine if pilots could complete a day's flying without having to manually fill out a journey log or update flight and duty forms—as well as having a draft invoice ready

for approval upon their return. Well, now they can.

By combining Aeronet's new .APP with one of a range of satellite tracking systems, you can automate most of

the reports and forms that pilots must enter at the end of every flight.

Aeronet spotted the need for this while working with many of its customers. "We could see

**aeronetapp**  
AUTOMATED OPERATIONS FLIGHT DATA

Aeronet's new APP works with most satellite tracking products on the market with these being the recommended solutions:



spidertracks



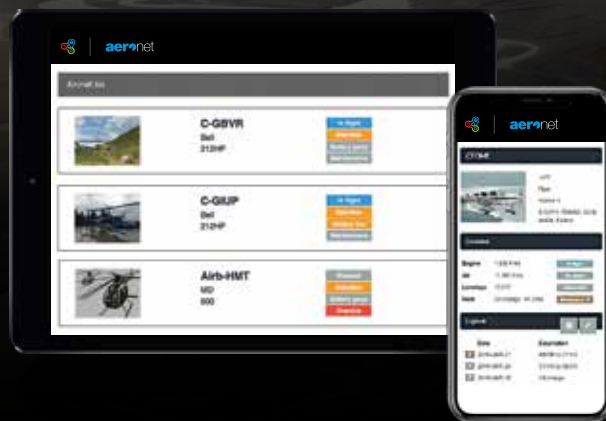
tracplus



V2 TRACK



Airbly





"All you have to do is fly. All your paperwork is being done in real time. I call it auto-magical."

— Aaron Shipman, founder and CEO

the biggest problem is that the pilots are writing down the same information multiple times," said Aaron Shipman, Aeronet's founder and chief executive officer. "They are writing it out in their own notebooks; they are writing it out in the journey log; they're writing it out on a draft invoice; writing it out on the flight ticket and so on.

"We solve that problem. We end up with the journey log, draft invoices, etc. without anyone writing anything down or typing it out on an iPad."

Aeronet is a small team of dedicated professionals headquartered in Cambridge, New Zealand. For 15 years, the company has worked alongside aviation experts, developing extremely flexible software solutions for the aviation industry. Aeronet has partnered with a wide range of aviation companies, navigating a very complex regulatory environment. Those partnerships have allowed it to create a collection of best practices that not only make for a great software system but also connect people to refined processes.

Cloud-based Aeronet is already popular with the aviation industry through its three successful products.

Operators use Aeronet. OPS, maintenance controllers enjoy Aeronet.MT and service providers employ Aeronet.MRO.

With that suite of three proven products working together in a web-enabled environment, Aeronet provides a system that helps aviation companies manage their business processes, resulting in increased efficiency and reduced costs. It's also adaptable—customized, scalable solutions are available for any size of organization.

The new Aeronet.APP builds on the expertise and experience gained with these leading products.

When the need for automated pilot data entry became clear, Aeronet and a group of entrepreneurial New Zealand based companies combined resources to

come up with the solution. When you put Aeronet.APP together with a satellite tracking unit from Spidertracks, V2track, TracPlus or Airbly, pilots no longer have to enter data manually at the end of a flight. They can use any of these units to flow data to Aeronet.APP.

"We work with our clients to utilize existing hardware and make recommendations whenever we can," said Shipman. "Most operators have satellite tracking, so we are leveraging off their current hardware. A new piece of hardware is not often required, we are just doing more things with it." If customers don't have any of that hardware, Shipman said, "Talk to us about what you have, and we will work with you on a solution."

Aeronet.APP automatically creates several documents in real time. These include journey logs, flight and duty forms, draft invoices, flight logbooks, maintenance alerts, landing fee reports, usage reports, safety alarms, and incident reports.

In perfecting the groundbreaking new product, Aeronet and its partners had several challenges to overcome, said Shipman. "It's pretty easy to put dots on a map, relatively easy to count hours, but harder to count landings, torque events and some of the other things needed for the journey log." Identifying the pilot on the job and identifying the job you're on to get an invoice was also difficult. "And identifying things like cycles can be relatively tricky, too."

Generally, the adoption of tablets and related gear in the cockpit and flight deck is credited with improving pilot data entry. Shipman agrees with this, but only up to a point: "Some of the operators focus on the electronic flight bag and ask pilots to enter it on a tablet. But depending on their age, it can actually be easier to write it out than type it. And basically, they are tired at the end of the day. So, many of those applications based around iPads, etc. aren't really solving the problem of pilot data entry accuracy."

With Aeronet.APP, though, "All you have to do is fly. All your paperwork is being done in real time. I call it auto-magical." ✈



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# Inside the GOLDEN HOUR

AN AUSSIE SME IS SOLVING THE  
HEMS INDUSTRY'S IMPOSSIBLE  
PROBLEM AND TAKING THE  
WORLD BY STORM.

In late 2016, Will Shrapnel and his HeliMods team took on a challenge that has vexed the emergency medical service (EMS) industry for decades.

How do we beat the clock and get critical patients to the care they need inside the "golden hour," and in the safest possible way for both patients and medics?

At the time, Shrapnel recounts that significant advances were occurring in stretcher technology.

"Advanced power-lifting stretchers were beginning to appear in road-based emergency vehicles across Australia and internationally, allowing paramedics to load and unload patients at the push of a button, without any lifting," said Shrapnel.

"However, the real challenge was how to get this technology into aircraft."

Due to the significant technical complexity required to achieve this, both the industry and end-users had deemed the task impossible.

Fast-forward to today and HeliMods has not only solved the challenge but is now incorporating its patented Powered Aero Loader™ (PAL™) technology into all of Ornge's air ambulance helicopters—one of the largest fleets of EMS-configured AW139s in the world.

So, how did this Aussie SME (small- and medium-sized enterprise) solve the seemingly impossible challenge and launch

itself onto the global stage?

Fundamental to its success has been an uncompromising drive to innovate and to persevere through the toughest problems. These principles are at the very core of HeliMods' DNA.

Interestingly, these are also deeply rooted characteristics in Shrapnel's family history.

Will is a direct descendant of Lt.-Gen. Henry Shrapnel, a British Army officer and inventor of the anti-personnel artillery munition bearing his name, an invention that vastly improved the technology of the day.

"The desire to innovate and to persist through solving the toughest problems has always been a driving force for me," said Shrapnel. "It's something I've carried with me from my family history, and that I've equally carried forward throughout my business and into my team."

"At HeliMods, we really do pride ourselves in our unrelenting pursuit to solve the most complex problems in completely novel ways. We do that by investing in world-leading technology, combined with an exceptionally talented, passionate and diverse team."

HeliMods has continually invested in the best technology, people and infrastructure to allow the organization to bring more diverse and innovative solutions to market.

The PAL was no different. The team poured millions of dollars and thousands

of hours into the project to achieve the best possible outcome, the result of which represents a substantial leap forward in air ambulance technology.

The PAL system enables a stretcher to be loaded into a helicopter in as little as 18 seconds, with just one push of a button. It requires only one operator and can support as much as 700 pounds (318 kilograms), eliminating the need to lift patients into an EMS helicopter manually.

The technology is also interoperable with ground ambulances, significantly reducing patient transfers and improving golden hour response times.

"It's a massive milestone in the industry," said Shrapnel. "This is now bringing the very best stretcher technology to the HEMS industry so that critical patients have the best possible chance of receiving fast, safe and efficient retrieval and care."

"Equally importantly, we have created a solution that also allows paramedics to enjoy better workplace safety and reduce their chances of injury while performing lifesaving missions."

The decision by Canadian operator Ornge to invest in the PAL technology for integration across its fleet of 11 Leonardo AW139 air ambulance helicopters came following an exhaustive global search and competitive procurement process.

Like the PAL system itself, the Ornge deal has represented a significant leap forward for HeliMods.

"We're very proud to be supporting the Ornge fleet," said Shrapnel. "We absolutely love working with industry leaders in HEMS operations, and are really excited about our future in the North American market."

The PAL technology represents just one example of the organization's capabilities.

HeliMods provides comprehensive, multi-platform mission solutions tailored to suit customer requirements. It offers rapid solution development through collaboration, leveraging the best digital design and advanced digital manufacturing technologies.

HeliMods has built an excellent reputation based on its ability to deliver innovative products and solutions, with significant speed, agility and responsiveness to customer requirements—while not compromising on quality.

The company is one of the largest holders of rotary-wing supplemental type certificates in the world.

"Our brand is a strong one, and it is becoming well-recognized—nationally and also internationally," said Shrapnel. "We feel there are great opportunities in the market for innovative and responsive organizations that set out to solve the industry's most challenging problems." ✦



“

“At HeliMods, we really do pride ourselves in our unrelenting pursuit to solve the most complex problems in completely novel ways. We do that by investing in world-leading technology, combined with an exceptionally talented, passionate and diverse team.”

— Will Shrapnel, managing director



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# EXPERIENCE has no substitute

ALPINE AEROTECH LP'S NEW BRANDING  
REAFFIRMS WHAT HAS BEEN THE SECRET OF ITS  
SUCCESS FOR NEARLY 30 YEARS. **BY GRAHAM CHANDLER**

**E**xperience has no substitute." This is Alpine Aerotech's new vision statement. It appears on branding boards displayed throughout the company's workplace.

"After 29 years, our team felt it was time for a new look," says president Jeff Denomme. "I really like to involve the employees in collective decision-making, so it all came about from an internal survey. These boards are a reminder for our employees to know who we are and what we value. We want to make sure we instill that in everything we do every day. We are really still the same, but with a new look."

Clearly, the results of the survey focused on the company's experience. "Our experience is something that I think is second to none," says Denomme. "We have employees and managers who have been here since day one, and we pretty much have zero turnover. It's a real strength."

Day one started in 1990 in Kelowna, British Columbia, when Alpine was primarily a structures shop. Over the years, the company expanded steadily into an all-around, one-stop shop, with full capabilities of paint, structures, component overhaul, avionics and manufacturing for helicopters. It also grew into a Platinum-rated, Bell Helicopter Textron approved Customer Service Facility—and a leading-edge provider of comprehensive, worldwide helicopter support and aircraft maintenance services from locations in Kelowna and Abbotsford, B.C.

Today, Alpine Aerotech provides

full-service maintenance and repair for all leading OEM helicopter types. Its capabilities include avionics, component overhaul, composite repair, maintenance engineering, quality assurance, structural repair and tooling. Add to that, product and parts sales, and manufacturing and product development, and you have a true one-stop shop that meets the needs of every helicopter operator.

The company focuses on all aspects of best-in-class customer service. Its credentials and global approvals assist in providing solutions for a large variety of helicopter types for customers around the world.

"It's all about steady and astute organic growth," says Denomme. "Over the past few years, we have focused on diversity and eliminating some of the seasonality in our business. International approvals and capabilities with all the leading OEM types have allowed us to expand our business and provide support and cost-saving solutions globally."

"The seasonality is tough in our business. Realistically, we were trying to drive 12 months of support into eight months. That is the downtime for all the Canadian and U.S. operators because they need their aircraft from May to September."

New capabilities have helped eliminate most of the seasonality, which helps alleviate some of the ups and downs for the employees and provides a stable work environment. What has also helped is Alpine has grown its



lease fleet and its hull and component exchange programs.

Its team strives to provide solutions, big or small, for every owner and operator. "When we understand their challenges, it enhances our relationship."

The new capabilities and diversity create a vital synergy between new business and new opportunities for employees. "Employees have opportunities from the diversity that we've put forth, so it's not always just from somebody retiring—there are a lot of new capabilities and a lot of new opportunities we are trying to drive."

Another recent development is a renewed emphasis on the use of tracked data to provide transparency and accurate and competitive quoting. "We try and provide a transparent quote, so customers understand the number of hours that go into these projects because we have the data from doing this for 30 years," explains Denomme. "We're giving the customer realistic expectations instead of quotes that get them in the door and then have them be disappointed when they get the invoice." Alpine has now fully integrated that transparency into its accounting and quoting system, thus providing better communication and updates through its planning department.

That openness and accountability boosts confidence on all sides. "It's about our employees and our customers," says Denomme. "We have so many return customers, and I think that's all because our customers can pick up the phone and talk to any one of us and get the personable and reliable support they expect."

"Realistically, we just want to make sure we are personable, experienced and reliable—and that we don't grow outside our comfort zone. We are not growing by leaps and bounds, but we are growing to what our capability is so we can continue to provide a quality product. That's really our goal—to keep doing what we're doing. And that takes experience and communicating with our customers."



"We have so many return customers, and I think that's all because our customers can pick up the phone and talk to any one of us and get the personable and reliable support they expect."

— Jeff Denomme, president,  
Alpine Aerotech



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**Vertical 911** is the only helicopter resource focused on the parapublic helicopter industry. It is delivered four times a year to emergency workers on the front lines: medical first responders, police, firefighters and other everyday heroes who save lives and keep us safe. **Vertical 911** was created to highlight the impressive achievements of this sector.



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# LEADING | BY Design

AEM IS FAR AHEAD OF THE COMPETITION IN ROTORCRAFT AVIONICS, AUDIO PRODUCTS AND LOUDSPEAKER SYSTEMS. **BY BEN FORREST**

**I**n 2009, when avionics maker Northern Airborne Technology (NAT) decided to close its manufacturing operations in Canada, a group of employees recognized an opportunity they couldn't pass up.

There was still considerable demand for NAT products in the marketplace, and the talent pool left behind at its facility in Kelowna, British Columbia, was second-to-none.

So, they banded together to form Anodyne Electronics Manufacturing Corp. (AEM). This new company continued to contract-manufacture and service the former NAT products while developing new products of its own—a signature line that has become one of the most trusted in the helicopter industry.

"We're constantly being approached for new products and new projects, as well," said Tony Weller, director of sales and marketing for AEM. "Nothing moves quickly in the aviation world, typically, so it's been a work in progress to gain that credibility and placement.

But it continues to pay dividends: we're being asked for by name."

AEM now has more than 90 employees based in Kelowna who design, manufacture and support avionics, aircraft audio systems, intercoms, tactical FM radio systems, illuminated panels and display products, internal and external PA (public address) systems, audio amplifiers, audio adapters, and remote switch assemblies.

The company is a Transport Canada approved manufacturer and maintenance organization, has European Aviation Safety Agency Part 145 approval, and is ISO9001/AS9100D registered.

Its broad customer base spans the entire rotorcraft industry worldwide, from small independent operators to major original equipment manufacturers.

AEM is an approved supplier for Airbus Helicopters, Leonardo Helicopters, Boeing Helicopters, Bell, Sikorsky, Hindustan Aeronautics and Embraer, among others, with several long-term agreements in place.

Quite simply, AEM is leading by design. "The systems and the categories that we operate in," said Weller, "we're ahead of the game. That's for sure."

In the past year, SMS Canada Corp., a wholly owned subsidiary of Structural Monitoring Systems plc of Australia, acquired AEM.

AEM and SMS had worked together for years to develop, produce and certify structural health monitoring technology, which the U.S. Federal Aviation Administration approved in 2018.

The merger puts AEM on excellent financial footing, with more capital at its disposal than ever before.

"Anything we decide we want to embark on now, or products that we wish to entertain, or different avenues we want to take, the capital investment is available," said Brian Wall, general manager of AEM.

In fact, "AEM is actively looking for like companies to acquire that complement our existing product line," said Wall.

The company isn't releasing specific

details about which new products will hit the market in the months ahead just yet, but the same commitment to quality and unparalleled customer service remains in place.

"I think when readers see the words 'AEM' and 'audio' in the same sentence or paragraph, it'll make sense to them," said Weller. "They know where we're probably headed."

Overall, AEM continues to be a key provider in airborne law enforcement, firefighting and helicopter emergency medical services, which were all staple markets for NAT, as well.

As for the company's focus on quality, said Wall, "We realize the importance quality has in the industry. Failures in the aerospace industry don't go over well at all, and we've got a very solid track record of delivering a quality product to the market, on time."

AEM modeled its corporate culture on the culture at NAT. It focuses on the customer, teamwork and continuous improvement.





"It's an important part of our recruitment processes," said Weller. "We're looking for people who fit that mold, where quality is important to them—where they actually care about what they're doing. They understand the need for a quality system and why we need to abide by it, and what that means for our customers."

"So, there's a real sense of pride within our organization that when our product goes out the door to the customer, it is a quality piece."

AEM is a Tier 1 supplier to some providers and a Tier 2 to others. As Wall noted, contracts for both sets of customers have stringent quality control mechanisms.

"We take pride in where we peg ourselves on achieving those goals and accomplishments," he said.

Going forward, AEM remains focused on leading by design, guided by the same values and commitment to quality that have been

with it from the very start.

"Look to AEM for some new things coming down the line," said Wall. "We have a strong background within our R&D department in the audio realm, and we're looking to make some new product launches in the next 12 to 18 months. They're going to be some pretty unique products, as we look to innovate with the new ideas we have percolating around here."



“

"We realize the importance quality has in the industry. Failures in the aerospace industry don't go over well at all, and we've got a very solid track record of delivering a quality product to the market, on time."

— Brian Wall, general manager of AEM

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“What’s also really important for potential customers and why they end up choosing Howell is time between certification and getting it on-aircraft. Our DAS is certified to the highest possible standards. Customers can expect that when they get a DAS, it will be on their aircraft in a short amount of time and will meet and exceed all of their requirements.” — Arthur (Shep) Brown, president and CEO



# PLAYING IT SAFE

HOWELL'S ACCURATE, FLEXIBLE, RELIABLE DATA ACQUISITION SYSTEM (DAS) CONTINUES THE COMPANY'S LONG-STANDING TRADITION OF USING DATA TO IMPROVE AIRCRAFT SAFETY AND PERFORMANCE.

BY AMITAV DASH

**A**fter nearly 70 years in business, some companies might rest on their laurels or be set in their ways, but not Howell Instruments. Founded in 1951, this expert in gas turbine engine products continues to develop new solutions that meet and exceed its clients' needs and demonstrate how flexible and adaptable the company's thinking and processes still are.

One of Howell's newest client-focused solutions is its Data Acquisition System (DAS), which is the product of decades of engine monitoring and engine health management experience.

"We've done engine monitors for better than 40 years," said Arthur (Shep) Brown, Howell's president and chief executive officer. While the industry has only recently begun to talk about the benefits of engine health management systems, "This is something we've been doing for decades."

Designed to suit any helicopter or fixed-wing aircraft with a gas turbine engine, Howell's DAS can consist of any or all of the following components: data acquisition units; display units; a configuration module; and a data logger unit.

While pilots have said it can take time to get used to having that much accurate information, once they do adapt, their flying improves.

"If the extra information is a nuisance and doesn't benefit the pilot," said Brown, "we can make it go away. If it concerns lifecycle management, we can record it and report it later."

That's the flexibility of Howell's system—it allows the customer to determine what's essential to the safe operation of their aircraft and how and where that information is displayed.

Said Brown: "Based on aircraft published requirements, FAA [Federal Aviation Administration] specifications and their own preferences, they can choose to record the data, use it to alert the pilot or present it as designed. Another benefit of the DAS is that if

there really is a problem with an aircraft system, it can be identified and fixed."

While the first application of the DAS saw it retrofitted into single-engine helicopters, the system is flexible and powerful enough to benefit turbine-powered helicopters or fixed-wing aircraft of any size or configuration, whether retrofit or new build.

"We designed the DAS as truly open architecture," said Brown. "Howell has designed, built and supported products of every type for gas turbine aircraft, from our engine monitors and on-wing testers, to primary instruments and test cell equipment. We've done instrumentation for the U-2 spy plane, for commercial King Airs, for the presidential helicopter (HMX-1), for the Kaman K-Max helicopter. If it's got a gas turbine in it, we're prepared [for the DAS] to meet its needs."

Introduced at Heli-Expo 2018 with launch customer MD Helicopters, the DAS has already seen acceptance and uptake in a wide array of operations. Brown said the company is currently doing a fixed-wing program, a military one for the C-130 transport aircraft and a civil program with a customer in Indonesia.

"We're also working on some rotor-wing applications with European OEMs—but we can't say too much about that yet."

Whatever the aircraft or sector, customers seem drawn to Howell and its DAS because this system can be quickly and reliably adapted to suit the needs of any operator.

"Flexibility is one of the primary reasons customers choose Howell and our DAS solution," said Brown.

"What's also really important for potential customers and why they end up choosing Howell is time between certification and getting it on-aircraft. Our DAS is certified to the highest possible standards. Customers can expect that when they get a DAS, it will be on their aircraft in a short amount of time and will

meet and exceed all their requirements."

Another benefit of Howell's DAS is that it's the newest solution on the market. That means it incorporates the latest and best hardware available.

"Frequently, we hear from customers about the clarity, speed or tremendous viewing angle of the displays."

Even with Howell's DAS being ahead of the market in many respects, the company is not standing still.

Said Brown: "Howell's R&D department never sleeps. The customer always wants lighter, faster, brighter, less expensive. We're listening. We've got a team in Europe right now demonstrating our latest DAS. We're giving the customer's engineering staff the ability to make parametric, scaling or even exceedance definition changes at their facility."

The company's founder, John S. Howell III, created the process Howell uses to work with its customers. As Brown explained, that means listening to a client's needs, investigating that need, proposing the best solution, developing and testing the product, and supporting the product for the long-term based on the client's changing requirements. "It's been working for 68 years, and I don't plan on changing it."

That lifetime focus on the customer's needs is backed up by Howell's commitment to finding the best solution possible.

"We spend a lot of time in the lab," said Brown. "We'll shake it, bake it and break it—and then do a forensic study. We're always looking for the better way to do something. Then, we'll try to find the most efficient way to get it done. We understand price is important, but this is also about aircraft safety."

That means Howell's DAS is cost-effective but the company doesn't cut corners when it comes to accuracy, reliability or quality—the company plays it safe, so each of its customers can be confident in their operational safety. ✈



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Medical crises often happen when we least expect them, on quiet days scarred by car crashes, heart attacks, hurricanes and a million other complications we don't schedule and can't control.

In those moments, first-responders do everything they can to save lives and ensure everyone with a chance of survival makes it safely out. Saving lives is the mission of every pilot, paramedic, police officer or firefighter who uses a helicopter as an air medical tool.

It's also the mission of every company that makes or modifies an aircraft for rescue purposes, including Spectrum Aeromed, a leading designer and manufacturer of air ambulance interiors.

"Our mission is to save lives," said Ricky Reno, a commercial helicopter pilot, flight instructor and A&P (airframe and powerplant) technician who is also a vice-president and account executive with Spectrum Aeromed. "This is not just a department of our business; it is our core business—saving lives."

Spectrum Aeromed has been designing, developing and installing air ambulance interiors for more than 25 years. The company is based in a 17,000-square-foot (1,580-square-meter), state-of-the-art facility at Hector International Airport in Fargo, North Dakota.

Spectrum has more than 60 supplemental type certificates for almost 300 aircraft models. It can supply any rotorcraft with the equipment needed to fulfill its helicopter emergency medical service (HEMS) mission.

"The equipment that we have designed and built can be utilized in pretty much any make and model of helicopter that's out there," said Reno.

"We don't look at it as being an aircraft—a specific aircraft as a challenge. We look at it as, there's a specific space that we have to work with, either rotor-wing or fixed-wing. And, we're able to provide equipment that will help the customer meet their mission capability."

Spectrum Aeromed has become synonymous with air life support, helping clients around the world with customized solutions to complicated and comprehensive HEMS requirements.

"We focus on doing nothing but providing air medical equipment for aircraft," said Reno. "Other companies that are out there, they focus on other things. But, we put all the resources that we have for our business into that—specifically for air ambulance and medical equipment."

Spectrum Aeromed has become known for its intensive design process based on in-depth research, with a focus on meeting the needs of patients,

pilots and paramedics alike.

"We really sit down and talk to the customer and find out what their mission need is," said Reno. "As technology changes, the end users are the ones that are actually out there doing the job. They're going to know what they need; they're going to know what works and does not work."

"As a manufacturer, we're not the actual end user, and we're not utilizing the product every day. So, by keeping in contact with the customer . . . they're providing feedback, and that helps us

can convert the aircraft from a utility aircraft into a HEMS type of airframe and be able to transport a patient."

In the case of an advanced life support system in a dual-role law enforcement aircraft, Spectrum Aeromed has a modular solution that crews can install in less than 20 minutes.

"It has suction pumps, air pumps, oxygen, electric inverters, and they've now got this aircraft that is an air ambulance that wasn't really modified internally to become a fully dedicated system," said Reno.

"Or, then we can go into a fully

"We focus on doing nothing but providing air medical equipment for aircraft. . . . We put all the resources that we have for our business into that—specifically for air ambulance and medical equipment."

— Ricky Reno, VP and account executive



learn and build equipment that's going to help [our customers] accomplish their missions."

Spectrum Aeromed provides customized HEMS solutions that range from simple to complex, and virtually every increment in between.

If an offshore customer needs to transport patients only occasionally, in a dual-purpose Leonardo AW139 or Sikorsky S-76, Spectrum's offering allows the operator to quickly fit a certified, low-cost stretcher in place of two passenger seats.

At the next level, an air ambulance that needs basic life support but not suction pumps, air pumps and other advanced equipment, Spectrum Aeromed has a solution for that, too.

"Again, it's a quick-change solution," said Reno. "In less than 20 minutes they

dedicated customer that has a fully integrated interior and provide suction pumps, air, liquid oxygen system."

Nearly all the salespeople at Spectrum have backgrounds in aviation, either as pilots, mechanics or similar professions.

"A lot of people think it's just that you're a medical company," said Reno, who is also a retired military pilot with more than 30 years of aviation experience. "Well, not really, because this is aviation. It is the aviation industry, and what we do are aviation products."

When a customer chooses Spectrum Aeromed, it begins a relationship that lasts the life of the product, and hopefully the life of the company.

"It's important to provide that lifetime support," said Reno. "Spectrum Aeromed is there to help you with your HEMS solutions—at a low cost, but high quality." ✈





# Mission Driven SOLUTIONS

AMONG THE SCALABLE, MISSION-DRIVEN PRODUCTS  
TECHNISONIC IS BRINGING TO HELI-EXPO ARE THE TDFM-9000  
WITH MCP TECHNOLOGY AND TDAP-611 MISSION AUDIO PANEL.

**A**s the pace and mission requirements of law enforcement, emergency medical service (EMS) and search-and-rescue (SAR) operations continue to expand, the need for clear, reliable communications has never been more critical.

Missions change. Circumstances change. Environments change. The support, commitment and dedication of the leadership team of Technisonic Industries, however, does not. Whether you fought the record forest fires in California or responded to the hurricanes in the Carolinas and Florida, Technisonic was there with you. Focusing on special-mission communications for more than 20 years, Technisonic has made its name

because of its diligence and leadership in providing a suite of the most dependable, fully customizable, scalable and relevant radio and audio solutions available. However, it's Technisonic's commitment to supporting the operators and departments it is honored to call its customers that truly drives the company.

Whether you are buying a brand new radio or audio panel or operating the very first one, it is Technisonic's continuing mission to always provide you with the very best support the company can offer. The world of land mobile communications is complex enough, add in the demands of flight operations, EMS, SAR and law enforcement activities and things can become pretty overwhelming. That's why Technisonic continually holds training events for its operators and dealers. It also goes one

step further: it gets directly involved in the problems and challenges these complex systems and installations can sometimes throw at crews and installers. It is this commitment to its customers that has led to the selection of Technisonic's products in more than 2,000 installations.

Technisonic remains committed to introducing scalable solutions with its all-new Multi-Purpose Communications Ports (MCP), now available on all TDFM-9000 series radios. This new technology allows operators to not only connect to external communication sources but also integrate those technologies and capabilities right into the radio itself.

"With MCP, Technisonic has developed a product that is upgradeable, scalable and updateable to meet the ever-changing new technologies, requirements and hardware

platforms that are introduced almost continually," said Jim Huddock, Technisonic's business development manager. "New communication technologies such as satellite PTT [Push-to-Talk], FirstNet and LTE are just a few of the recent considerations and technologies coming to the market. MCP allows us to quickly accommodate, and in some cases integrate these products directly into the TDFM radio. This allows us to enhance our customers' radios and mission capabilities simultaneously.

"It has never been Technisonic's philosophy to stop there. Just because a capability exists, does not mean that it fulfills the mission's operational requirements. Sometimes the mission requires three, four or five of the different communication technologies, all working independently or in tandem to make an



operation a success. That is why all of Technisonic's products are scalable and mission-driven by design."

The TDAP-611 mission audio panel the company introduced in 2018 is a perfect example of integrating technologies into a single platform. The TDAP-611 supports eight transceivers, six receivers and a dedicated PA (public address) position in a lightweight, space- and budget-conscious analog audio panel. With thoughtful features like dual intercoms, built-in alerts and standard night-vision-goggle compatibility, operators never have to compromise on the critical communications requirements of the mission. Developed for the single-engine-rotorcraft, special-mission market, this audio panel has proven itself as an excellent selection for performance-minded departments and operators.

Technisonic's leadership team understands that features and functions alone are not all that is required to help operators complete their missions. Operators need service, dedication and commitment after the sale. That is why Technisonic ensures its customers are fully trained and supported in their use of all its products.

"We're pretty insistent that our operators are trained on the product and understand how the product works," said Huddock. "That's one of the hallmarks of the company."

Technisonic also goes the extra mile when partnering with industry-leading companies, such as RAMI (R.A. Miller Industries) on antenna designs and solutions, and Latitude Technologies for satellite integration.

It also offers design consultation and provides its customers with access to experts in land mobile radio and technical support. Technisonic's product support commitment is unprecedented in the industry. It is the company's emphasis on reliability and usability that truly directs its path.

"We know reliability is paramount," said Huddock. "Engineering to quality control, sales to support, our commitment is to the customer. If a customer does have a problem or if we find a feature that's missing, we're pretty quick to address that. Our team is focused on the core communication aspect of the mission. Whether it's a federal aircraft, law enforcement, EMS or a forestry operation, communication is always a critical mission requirement.

Without reliable communications, the mission can't go, and that is something that Technisonic takes very seriously."

Technisonic will be showcasing its new TDFM-9000 with MCP technology and the TDAP-611 at Heli-Expo 2019. The company encourages and wants to hear from its operators at the show.

Said Huddock: "That's the true and largest value, as well as the best part of any show, getting to talk with the folks operating our equipment every day, because that's what gives us the insight and the inspiration for the next update or product. We can take valuable field experience from that insight and act on it." ✨



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# SAFRAN

# TAKES THE LEAD

## in Future Vertical Flight Propulsion

FROM STATE-OF-THE-ART GAS TURBINES TO A NEW HYBRID-ELECTRIC SYSTEM, SAFRAN LEADS IN ALL SEGMENTS OF THE VERTICAL PROPULSION MARKET.

**M**ost new-generation helicopters and vertical-takeoff-and-landing (VTOL) aircraft have one thing in common: they are powered by Safran.

"It is all about providing the right solution for a specific need at the right moment," explains Franck Saudo, chief executive officer of Safran Helicopter Engines. "We are leaders in the propulsion systems sector because we are committed to an innovation roadmap that anticipates market requirements."

The French manufacturer offers a comprehensive range of state-of-the-art gas turbines, starting with its newest Arrano, Ardiden and Aneto models. The Arrano and Aneto are both in the final phase of certification; European type certification is anticipated in the coming months.

Says Saudo, "Both the Arrano aboard the Airbus Helicopters H160, and the Aneto-1K in the [Leonardo] AW189K, have demonstrated robust performance during their test campaigns and will soon enter service."

The 1,100- to 1,300-shaft-horsepower (shp) Arrano has logged more than 1,900 hours of flight-testing, and Safran will deliver the first production unit to Airbus Helicopters during the second half of 2019. Providing a 15-percent reduction in fuel consumption over other engines in the same power range and featuring excellent performance and simple maintenance, the Arrano will

form an unbeatable partnership with the H160.

The first Aneto, the 1K, has performed well on the AW189K, with 300 flights logged, notably during hot and high conditions.

"The Aneto is joining the market at the right moment," says Saudo. "Helicopter manufacturers need new-generation power solutions to help their customers meet transport and parapublic or search-and-rescue missions by delivering higher performance in hot and high conditions."

Last year, Safran Helicopter Engines, together with various sister companies, accelerated their hybrid propulsion strategy past significant milestones: including selection for the Bell Nexus and first ground runs of Safran's hybrid-electric propulsion system.

"We have been preparing those technologies for several years," says Saudo, "But in 2018, [we] witnessed a convergence between these technologies and a growing demand for new missions like urban transportation."

Today, urban mobility using conventional helicopters is limited by noise regulations and planning restrictions.

Says Saudo: "Typically, mobility in cities means merely avoiding

traffic by flying from downtown to the airport. The market will dictate demand for these missions, but multi-rotor VTOL aircraft, featuring electrically distributed propulsion, will most probably be the next step towards achieving it.

"For a while, electrical generation will rely on a mix of battery and thermal power, since battery capacity cannot yet deliver the required range and payload. Furthermore, hybrid-electric VTOL craft can also meet the requirements of other missions, like offshore transport, parapublic or military."

Safran Group is at the leading edge of hybrid-electric propulsion and is capable of providing all the required components: the gas turbine, generator, power distribution and electric motors.

To coincide with its system's selection to power the Bell Nexus, which was recently unveiled at CES (Consumer Electronics Show) in Las Vegas, Nevada, Safran has started a test program. The first ground tests, in 2018, featured a system capable of 100 kilowatts-electric (kWe). Further tests will be carried out this year, leading to a system capable of producing more than 600 kWe (800 hp).

### THE BEST FOR SAFRAN'S CUSTOMERS

In parallel with this future propulsion system, Safran Helicopter Engines has a comprehensive strategy to ensure it continues to offer the best to its customers.

In 2018, the French manufacturer launched new digital services that were all developed with and approved by its customers. Among these is Expert Link, an online service allowing customers to connect—via a secure, live video feed—with Safran experts who can help with a technical diagnosis or guide them through a maintenance task. Its Health Monitoring service allows customers to track engine life data and reduces unplanned events. Engine life can be improved through the early detection of problems, prognosis analysis and a customized maintenance plan. This service already covers some 1,700 engines.

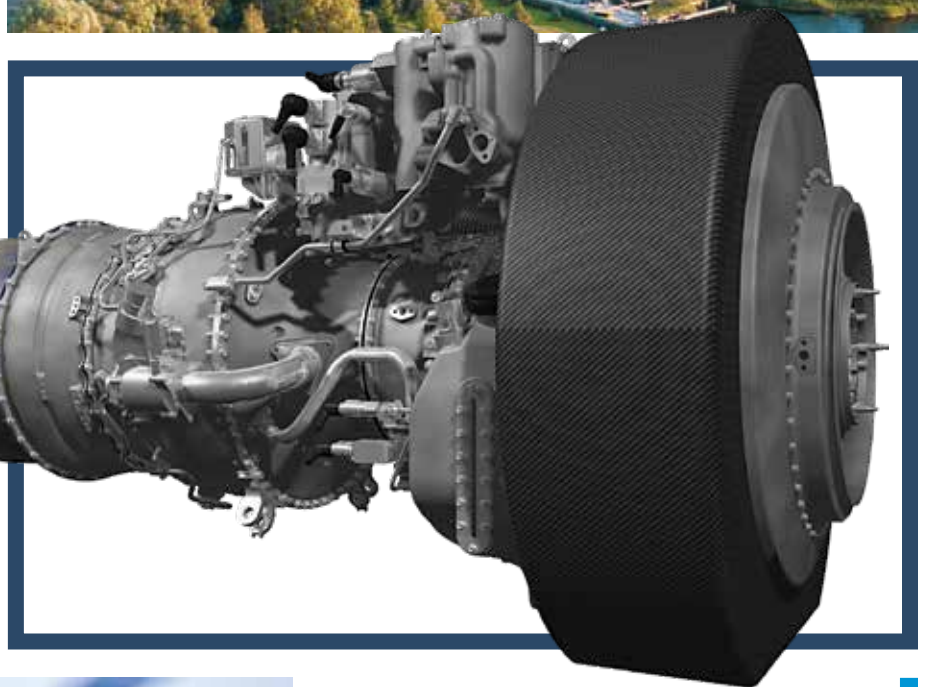
The company has also completely revamped its EngineLife Customer Portal. This resource provides customers with a unique doorway to its full range of digital services.

Finally, Safran Helicopter Engines has also announced improvements to its Support-By-the-Hour (SBH®) service portfolio. Created to provide a comprehensive "pay as you fly" service, SBH solutions now cover every customer profile: SBH®5Star for civil operators of up to five aircraft, SBH®Classic for fleets of six-plus aircraft and SBH®M for military air arms. ✦



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“We are leaders in the propulsion systems sector because we are committed to an innovation roadmap that anticipates market requirements.”

— Franck Saudo, CEO, Safran Helicopter Engines



# SIMULATION MATCHES REALITY

ADAC HEMS ACADEMY'S LEVEL D FFS PROVIDES INTERNATIONAL AIRBUS H145 OPERATORS WITH A VITAL MISSION-FOCUSED FLIGHT-TRAINING RESOURCE.

**T**he H145 full-flight simulator (FFS) with simulated Helionix Step 2 avionics suite—all certified by EASA/LBA to Level D—has led to a whole new approach to simulator-based helicopter training. The ADAC HEMS Academy teamed up with German simulator manufacturer Reiser Simulation and Training GmbH (RST) to develop and produce this full-flight simulator to complement the already existing EC135 and EC145 FFSes.

Starting in 2014, ADAC Luftrettung (Air Rescue), the sister organization of the HEMS Academy and one of the major helicopter emergency medical service (HEMS) operators in Europe, began replacing its legacy BK117B-2s with Airbus Helicopters H145s. The new H145 fleet represents a

significant advancement, most notably in the incorporation of the Helionix avionics suite.

The mission experience of ADAC Air Rescue, which currently operates 14 H145 and 37 EC135 helicopters, has translated into the safety-oriented development of the H145 FFS at the HEMS Academy. ADAC Air Rescue has established considerable expertise and a respected record for safely flying HEMS missions during more than 45 years of operation. In 2018 alone, ADAC Air Rescue flew more than 55,000 rescue missions.

The HEMS Academy is committed to providing the highest level of simulation with the H145 Level D FFS. This simulator incorporates the best fidelity and represents as much of a step forward in synthetic training as the

new aircraft did in the air. It provides a level of fidelity in the scenarios and the environmental system that was, at the time, not previously available.

"The latest technologies and the highest degree of customization were paramount in order to enhance the quality of the training for our own pilots, and national and international customers," says Thomas Gassmann, director of business development at the HEMS Academy.

"We keep our 'finger on the pulse' of the operation. As an experienced helicopter pilot, I am convinced that flight training in a simulated environment, performed by skilled instructors, significantly improves training benefits and efficiency, while avoiding training risks involved in helicopter operations."

## A SUCCESS STORY BEGINS

All simulators rely on a flight data model that makes the simulator seem like the real flying experience. While aircraft manufacturers traditionally develop the flight data model, a rigorous flight test program was set up by RST's Flight Systems business unit to generate mission-specific flight data models for a new generation of full-flight simulators.

The levels of flight simulation fidelity incorporate a vast array of criteria that must be met within narrow tolerances to achieve Level D certification. However, at least as much effort was poured into creating a system specified to meet the requirements of the ADAC HEMS Academy's training philosophy: a whole mission, whole crew approach.







NVIS (night vision imaging system) techniques to be taught and practiced. Pilots can use the night vision goggles they use in real-life operations.

H145 operators that have used the simulator noted that the visual system was the best they've ever worked with.

"Reiser Simulation and Training has helped the aviation industry to bridge the gap between reality and imagination, and train its pilots in high-quality replicated scenarios and equipment without compromising the output," says Dr. Roman Sperl, RST's CEO.

"Our offerings improve skills in cockpit procedure trainers, flight training devices and full-flight simulators for pilots, as well as assisting technicians with the repair and maintenance of the aircraft itself," says Sperl. "We deliver systems that are being used in the most challenging environments. Pilot training is most important for safety, and we want to be part of their development."

An avionic desktop trainer (ADT) built by RST is being used to supplement the H145 FFS and prepare students for the simulator.

The ADT uses touchscreens to replicate the avionics and aircraft systems to assist in learning procedures. Simultaneously displaying system diagrams and detailed 3D models of components clearly illustrate the complex interrelationship between systems during various phases of aircraft operation. Equipped with software that is fully derived from the FFS, the ADT allows both self- and aided instruction up to Difference Level C.

The Academy's external clients range from offshore and VIP, to police and parapublic operators from more than 30 countries. Their pilots are well-served by the Academy's facilities, with type ratings, differentials, IFR (instrument flight rules), NVIS and IIMC (inadvertent instrument meteorological conditions) training offered for H135, EC145 and H145 operators worldwide, independent of their mission background.

The emphasis of the simulator training at the HEMS Academy is on the mission, rather than flying techniques. "Our aim is not to train procedures only," says Thomas Hütsch, "but to rehearse situations, let the trainee make mistakes safely, to learn and hereby to create resilient pilots."

"This ground-breaking H145 simulator at the highest possible standard is a result of being constantly challenged by our customers' mission requirements," concludes Dr. Roman Sperl. "Our success has only been made possible through the great teamwork of our professional teams!" ✨

"Our training has to adjust to the constantly changing demands of new, smart technology, without losing sight of the fact that aviators still need traditional aeronautical knowledge and skills," says Thomas Hütsch, chief executive officer of the HEMS Academy. "The new H145 FFS allows the instructor to create more complex compound malfunction scenarios that more closely mirror the progression of real-world emergencies."

The projector system generates the simulator's field of view of 240 by 80 degrees. The resolution and graphic fidelity of the simulator allow for profound visual reference that provides unprecedented immersion. Additionally, visual and infrared images can be projected simultaneously, enabling proper



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# OPTIMIZING EVERY FLIGHT

WHEN YOU'VE PIONEERED UNPRECEDENTED WAYS OF CONNECTING AIR AND GROUND TEAMS, WHAT'S NEXT? KEEP DOING IT.

BY GRAHAM CHANDLER

**I**nnovation is the hallmark of Latitude Technologies.

This premier avionics design and manufacturing firm was founded in 2001 in Victoria, British Columbia, with a clear mission to offer the most cost-effective and feature-rich delivery solutions for air-to-ground voice communications, real-time flight data and mission-critical situational awareness.

One of Latitude's early landmark achievements was its Air Tanker Information System™ (ATIS). By allowing operators and agencies to visualize aerial fire attack data in real time, ATIS pioneered the tracking of water-bombers and set the path for new standards in Automated Flight Following.

"We have always wanted to offer our customers information that allowed them to perform as safely and efficiently as possible," said Latitude president and founder Mark Insley. "We led the development back then and continue to do so today."

Today, Latitude supports more than 500 fleet operators in the aerial firefighting, search-and-rescue, medical transport, airborne law enforcement, and military defense sectors. The company also has a growing portfolio of products and services for fixed-wing business aviation and air transport clients. Collectively, this means Latitude has a customer base that covers more than 30 territories and all seven continents.

Insley attributes the company's

growth to a commitment to superior customer service: "We have a drive to understand our clients' needs and to innovate solutions that perform to the highest standards."

For example, Latitude's Flight Data Monitoring (FDM) offering is purpose-built to provide a robust yet lightweight solution that monitors operational safety, engine trend data and fuel consumption. Following the company's modular design principles, Latitude's IONode FDM hardware can be paired easily with other Latitude systems, such as ATIS or the SkyNode transceiver hardware. Latitude's unique FDM solution received a United States patent in October 2018 for innovations related to a wireless data transfer process that streamlines FDM data extraction and ultimately simplifies analysis for operators.

Adding a further layer of value to clients' air-to-ground communications is Latitude's newest coordinated

communications solution powered by Iridium Push-to-Talk (PTT).

For coordinated operations such as disaster response, the system connects crews in the air with teams on the ground, dispatch management and agency headquarters over wide geographic regions. Backed by Iridium's global satellite network, it is fully independent of ground-based communication networks, which means issues such as environmental conditions or downed towers do not disrupt the system.

"It is 'one-key' dialing that allows for encrypted conversations between an unlimited number of talk groups under all conditions," said Insley. "In critical situations, you don't need to know the phone numbers of the party you're trying to call or to be called anymore. Programming tactical radio frequencies to work out of province/state or even dialing international is no longer an issue. In the heat of the moment, when it really

matters most, it makes coordinating communication for disaster relief an entirely new paradigm—talk groups can be set up easily from anywhere and in just a matter of minutes."

He added that Latitude's implementation is unique as it also provides Iridium PTT capabilities to Technisonic TDFM radios by exploiting their pilot radio interface. "For operators that have this common equipment onboard, it makes upgrading communications systems easy and negates the need for additional panel space to install a new dialer."

These types of innovations and design solutions, backed by the highest levels of customer service, are what makes Latitude stand out. Said Insley, "People come to Latitude because of our knowledge and experience. We're here to deliver that same level of service for many years to come." ✦

"People come to Latitude because of our knowledge and experience. We're here to deliver that same level of service for many years to come."

— Mark Insley, president and founder



A Latitude client since 2007, Talon Helicopters leads a variety of missions, including lifesaving search and rescue, fire response, utility, and transport. The operator is the No.1 supplier of helicopter services in Vancouver, British Columbia. Like Latitude, Talon provides top-notch quality and care to its family of customers and prides itself on holding a perfect safety record.  
**Talon Helicopters Photo**

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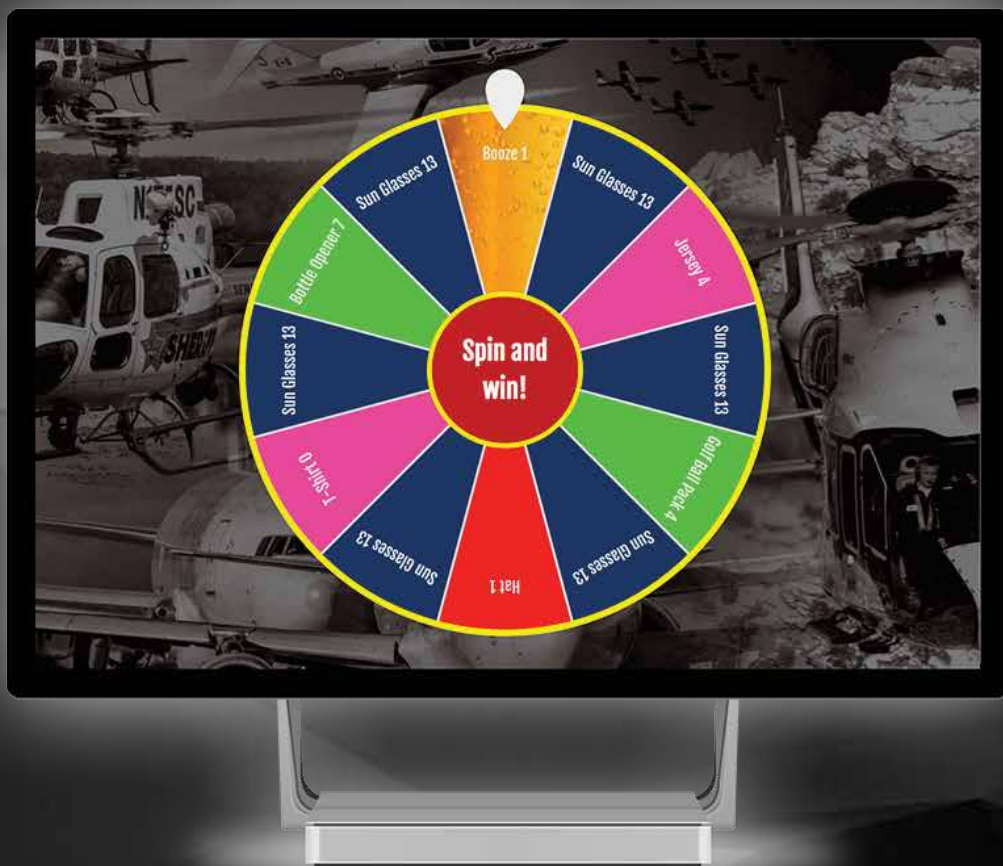
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# A LEGACY CONTINUES

**A**lmost 40 years ago, Bruce Anning, the founder and VP of technical operations of Advanced Composite Structures Inc. (ACS)—the rotor-blade repair experts based in Winnipeg, Manitoba—was hired as a junior at Composite Technology Inc. (CTI). That company had been the brainchild of the late Keith Harvey, whom Anning refers to as “the pioneer of rotor-blade repair.” Now, Harvey’s legacy is moving into a new stage as part of ACS, with a brand-new facility in Northern California.

Anning, who started at CTI in 1981, quickly moved up in the company and “started to build a very positive relationship with Keith,” he recalls. Then, “Back in the late ‘80s, Keith decided to put the Composite Technology group up for sale. I was looking to put my name on the map and started Advanced Composite Structures in 1988. We put our nose to the ground, and off we went.”

As ACS grew, it established other rotor-blade repair centers in New Zealand and Florida. Meanwhile, Harvey re-entered the business, founding

## ADVANCED COMPOSITE STRUCTURES BUILDS ROTOR-TECH INTERNATIONAL A NEW HOME

BY SARAH B. HOOD

a new company called Rotor-Tech International (RTI) in his hometown of Stockton, California.

Gradually, discussions began to take place with the Keith Harvey founded company, RTI, about working together. “The initial thoughts were to merge, to use the synergies of the two corporations to take on more opportunities,” says Anning and it came to fruition in early 2015, when ACS acquired ownership of RTI.

“Now, we’re looking for areas of improvement,” says Anning. “A lot of work went into blending

methodologies; a lot of it was blending the Canadian culture and the Western U.S. culture, and trying to follow the success stories of the two companies. It was apparent that they needed a more state-of-the-art facility, so in May 2018 we acquired a 20,000-square-foot [1,860-square-meter] facility located right at the Stockton airport. We’re working on plant modernization of that facility.”

Opening its doors in February 2019, the new RTI rotor-blade repair center will be “the most advanced rotor-blade repair facility in the world,” says

Anning. It will have state-of-the-art equipment and a layout designed to maximize efficiency. “Through increased efficiencies, along with improved quality, quicker turnaround times and exceptional pricing will be the end result for our customers.”

Continuing on Anning’s motto of “Fixing Problems, Not Symptoms, using Sound-Solid-Solutions,” ACS is now a world leader in rotor-blade repair. “This is the next chapter in ACS’s growth; this new facility will be used as a standard,” says Anning and it “positions RTI for world-renowned greatness.” ✦

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For helicopter operators in the aerial firefighting business, using high-quality, reliable equipment is vital. Likewise, having sufficient support and training for that equipment is equally important. SEI Industries Ltd., based in Delta, British Columbia, has held a strong belief in these aspects for nearly four decades.

Renowned for its Bambi Bucket application, SEI believes that providing outstanding customer service and building top-notch products have been fundamental to the company's success in enabling aerial operators to fight wildfires around the globe.

"We understand that when our customers are in a firefighting situation, they need a reliable product," said Sergio Fukamati, director of SEI's firefighting division. "If they need parts or if they damage the bucket during operation, we are prepared to support them."

# CONTINUOUSLY EVOLVING

RENOWNED FOR  
ITS BAMBI BUCKET  
AERIAL FIREFIGHTING  
SOLUTIONS, SEI  
INDUSTRIES HOLDS  
A STRONG BELIEF  
IN PUTTING ITS  
CUSTOMERS FIRST TO  
DELIVER THE BEST.

BY DAYNA FEDY

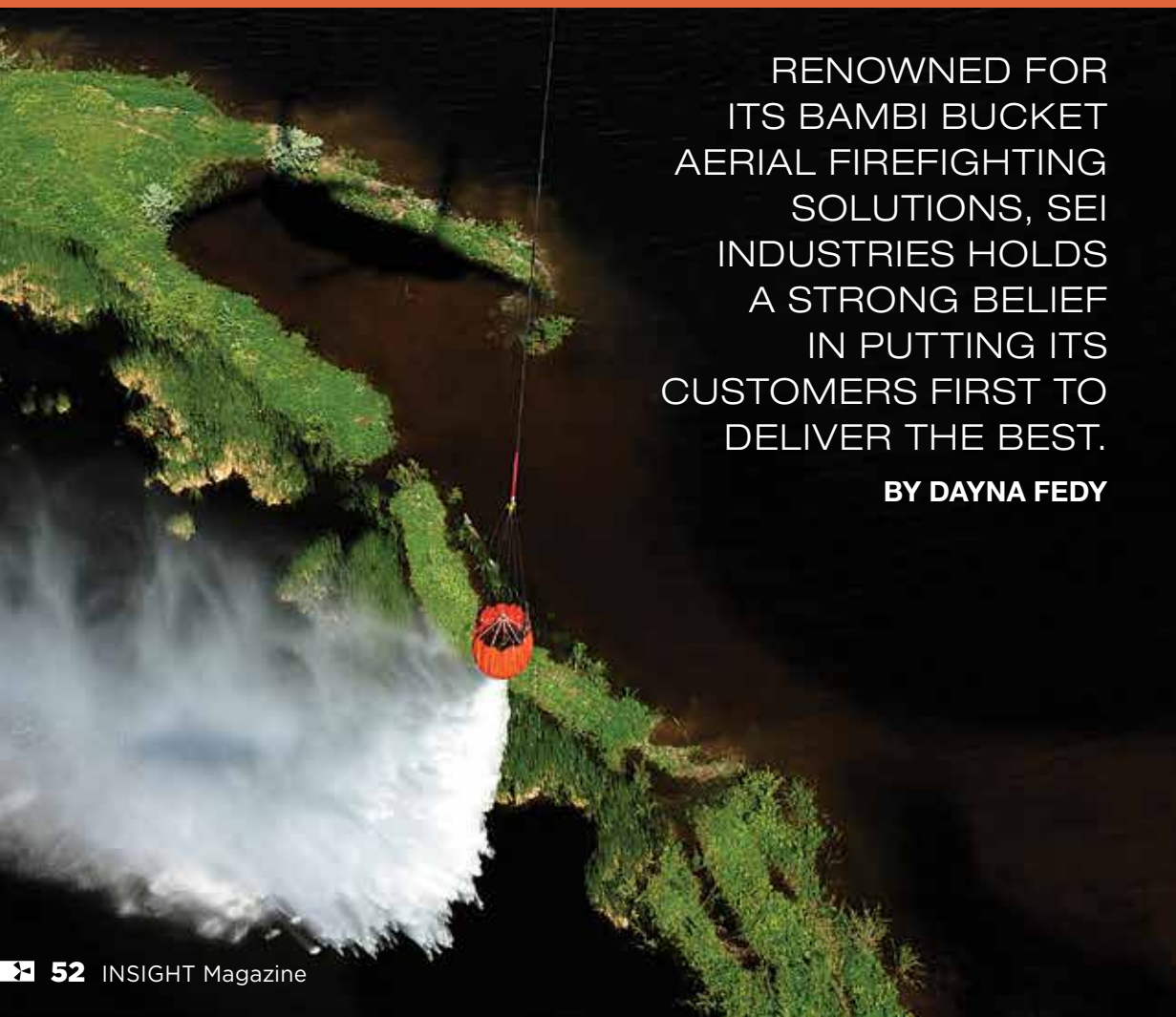
The history of the Bambi Bucket goes back to 1982, when Don Arney, a helicopter pilot, came up with the idea of developing a collapsible water bucket that could be slung below a helicopter. A business that began in Arney's garage with a handful of people making the first few buckets, SEI has since flourished with its Aerial Firefighting, Fire Ignition and Remote Site divisions. The company has grown to roughly 80 employees at the Delta facility, with an impressive network of approved service centers located in the U.S., South America, Europe, Australia and East Asia.

## CUSTOMER-CENTRIC

The Bambi Bucket has an estimated 95 percent market share in the aerial firefighting bucket market, which can in part be attributed to SEI's next-level customer service.

The company has a 24-7 AOG (aircraft-on-ground) line to assist customers in need of products or support.

During the busy 2018 fire season in Sweden, SEI received a call on a Thursday from one of its 50 trained agents stating a customer needed a bucket immediately. "They placed the order and we managed to ship out of Delta [to Sweden] on that same Thursday. . . . Monday morning their local time, the agent drove his





pickup truck and delivered the bucket to the customer," said Fukamati.

"Mikael Sahlberg [the agent] was here visiting us for training after the fact and said that customer could not believe he got that bucket in such a short period of time."

On-site maintenance training for customers is available upon request, and detailed operation and maintenance manuals for each of SEI's products are available on the company's website; this ensures customers get the most out of their Bambi Buckets.

### "BUILT TO ENDURE"

Committed to providing the best for its customers, SEI ensures every Bambi Bucket is "built to endure." While the buckets use simple, lightweight technology and are fully collapsible, they are built with a top-of-the-line proprietary fabric made specifically for SEI. Over the years, the company has made adjustments

bucket—the Bambi MAX valve 2.0.

"The new valve incorporates important improvements to its operation," explained Fukamati. "This is all related to the feedback that we received along the lifecycle of the product."

The MAX bucket features an efficient multiple-drop valve that maximizes the bucket load throughout the fuel cycle. Pilots can choose to unload as many separate drops as they require. The valve 2.0 has upgraded motor protection that maintains valve control during stall conditions.

"With more than 8,000 hours and more than 25 wildfire seasons, I consider the Bambi MAX the best product for the fight against wildfires," said Francisco Lucas, chief pilot at CoyotAir.

The next bucket model on the company's horizon is the Bambi i-MAX—the latest evolution of the Bambi MAX. The i-MAX combines features of the Bambi MAX with a

# VOLVING

to achieve the optimal thickness and composition of the material to make it strong, wear-resistant and flexible.

"I have met customers who say, 'I have had this [bucket] for 10 years . . . it's still working, and we are happy with it,'" said Fukamati.

Between the Bambi Bucket and Bambi MAX, there are 33 different bucket models, each one with a different weight and capacity for water, retardant or foam. Bucket capacities range from 72 US gallons (273 liters) to 2,590 US gallons (9,804 liters), providing options for all helicopters ranging from a Robinson R44 to a Boeing CH-47 Chinook.

### EXPERTS IN INNOVATION

Using the latest available technologies, SEI is known for improving its products based on feedback from customers in the field.

"The Bambi Bucket has been on the market for [about] 35 years, and we are still making continuous improvements in that same product," said Fukamati. "We listen to our customers, we follow up on the inputs they give us from the operation, and then we are continuously bringing those inputs into design adjustments and improvements to make [the bucket] even better."

This tactic resulted in SEI creating an improved valve for the Bambi MAX

load-sensing head and Bambi Master Controller (BMC) technology. The sensing head measures the bucket load and converts it to water volume. The data is processed by the BMC, which automates functions such as load shedding, multiple drops and coverage control on a simple touchscreen application.

Beta flight-testing for the i-MAX was successfully performed in Spain during the summer of 2018; tests will continue in North America through 2019 with the goal of having the bucket ready for full production by 2020.

While SEI excels at innovation, the company takes pride in its ability to cover all points of the product journey: design, production, sales, training, maintenance and last, but certainly not least, customer service.

"Operators can't take risks when it comes to their operational equipment," said Fukamati. "They need reliability in both the product and customer support. Operators have trusted the Bambi Bucket team for decades, and they know they can count on us." ❖



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“We can support everything down to the lightest aircraft in a meaningful, realistic, high-fidelity training environment. Now is the time to take your safety and mission readiness to another level.”

— David Smith, VP, TRU's business aviation division



# NEXT-LEVEL SIMULATION

TRU SIMULATION + TRAINING  
PROVIDES A REMARKABLE LEVEL  
OF REALISM WITH ITS FLIGHT  
SIMULATORS. NOW IS THE TIME  
TO EMBRACE THAT REALISM.

BY BEN FORREST

When TRU Simulation + Training, a Textron company, set out to develop a Level D full-flight simulator (FFS) for the Bell 429 helicopter, its ambitions weren't small. The goal was to create an immersive experience that replicates every aspect of flying the 429 with incredible realism, from picture-perfect visual renderings to flawless physical cues.

"I think we really hit a home run with that," said David Smith, vice-president of TRU's business aviation division. "[Both] in the technology, and in driving the regulators to think differently about what could be accomplished in a full-flight simulator."

TRU's Bell 429 FFS is the first-ever certified by the European Aviation Safety Agency and is a remarkable example of the realism that can be achieved in a helicopter platform. It provides the industry's largest standard visual field of view, the largest standard dome radius of any simulator on the market and industry-leading motion performance, with high-fidelity accelerations, smoothness and responsiveness.

"It exceeds requirements in ways that maybe other developers had chosen not to," said Smith. "But we felt—particularly because of our close connection with the Bell Training Academy, and [because] the helicopter industry has yet to have the level of embrace with simulation that the fixed-wing community does—we felt this would help jumpstart that in the right direction."

TRU's Bell 429 FFS is one of the

most recent entries in the company's outstanding product line. That product selection includes simulators and training solutions for Textron's fixed-wing products, such as Cessna Citation business jets and Beechcraft King Air turboprops, as well as simulators for key civil aviation transport aircraft from major manufacturers like Boeing and Airbus. Among the other services TRU provides are maintenance training on several platforms and extensive military simulation and training services.

However, the helicopter market will be a key focus as TRU moves forward, as the company sees simulation as the safest, most practical option for several dangerous and complex training scenarios.

Smith recalled a customer from his days at Bell who would swing large, expensive payloads into the islands off Alaska with a single-engine helicopter.

"How often does he get the training scenario to drop and cut the load, and do an autorotation because of an engine failure?" remarked Smith. "That scenario is not trained today. They think about it; they plan for it every time they're flying . . . looking for—'Where's my landing spot?' But the reality is they don't, they don't train for it, and so we can train for that in a simulator."

TRU full-flight simulators have expansive, jaw-dropping visuals that wrap fully around the pilot, ensuring that

no matter where the pilot looks, they feel as if they are inside the flight scenario.

The Bell 429 FFS also has two separate motion systems that provide precise physical cues that add to the level of realism and immersion.

Its first motion system drives the simulator's primary movements in a typical six-degrees-of-freedom setup, while the second system picks up on more precise movements, such as vibrations in the cabin and other effects of engine failure.

"We dial it in such a very precise way that it really has been just an exceptional level of realism," said Smith. "So, we're very excited about that platform, but we're ready to push it to the next level."

With that in mind, TRU is doing research and development that will enhance simulation realism and immersion in several significant areas. They include more detailed visual and physical cues that would make crew training in hoisting and air medical loading simulations even more true-to-life. Other critical steps will be simulating what the passenger in a helicopter cockpit feels during flight and better replicating weather patterns.

"If you're putting someone into a simulated environment and the thermal behavior in a valley or in a canyon . . .

doesn't behave the way it does in the real world—that takes them out of that simulation," said Smith. "So, more exploration of the technical [aspects] of weather patterns, and in that sort of physics-based realism, is crucial."

TRU consults with aircraft designers, pilots and operators when it develops its simulators, knowing an aircraft behaves differently in different settings.

"Engaging customers that fly the aircraft in those really unique, specialized environments—and then turning that into a scenario that brings that realism to another level, that's crucial," said Smith.

TRU has developed a culture of constant innovation in flight training and simulation, with a focus on cultivating bold ideas.

Aviation safety is at the core of its business today, and the company strives to represent its customers well in all avenues of training.

As the industry gathers at Heli-Expo 2019, TRU Simulation + Training's message is simple: Now is the time for simulation to become part of every helicopter operator's flight training portfolio.

"We can support everything down to the lightest aircraft in a meaningful, realistic, high-fidelity training environment," said Smith. "Now is the time to take your safety and mission readiness to another level." ✈



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# Turning NIGHT

Pilots have long sought ways to improve the way they see the world outside the cockpit. Astronics Max-Viz, a trailblazer in enhanced vision systems (EVS) for the world's leading helicopter manufacturers, continues to advance the technology with the release of the Max-Viz 2400. First introduced in 2001, the Astronics Max-Viz EVS employs infrared sensors, signal processing and advanced cockpit displays to show terrain, runways, taxiways, aircraft and obstacles in poor visibility conditions, including light fog, haze, smoke, smog, light precipitation and darkness.

The compact and lightweight systems, which are designed for fixed- and rotary-wing aircraft, provide pilots with a live, moving image to enable optimum decision-making during critical phases of flight, said Tom Geiger, business unit manager.

With the Max-Viz 2400, Astronics Max-Viz has enhanced its dual-sensor EVS line. The product offers all the technological advancements of the Max-Viz 2300, including the ability to see the LED lighting used for heliports, taxiways and approach lights, and it is encased in an aerodynamic fairing, eliminating the need for a custom installation.

"We listened to our customers and developed the Max-Viz 2400 to address the need for a surface-mounted, high-resolution, dual-sensor system

housed in its own fairing," explained Geiger. "This reduces installation time and costs, and increases the mounting location options on the aircraft for maximum flexibility."

The advancements to the Max-Viz 2400 come as the U.S. Federal Aviation Administration (FAA) continues to study the use of EVS for instrument approaches and landings at heliports. While EVS rules exist for approaches to runways at airports, comparable regulations for EVS have yet to be established for helicopters flying to onshore or offshore helipads at heliports.

As part of the study, which Geiger hopes will establish a basis for the possible application of EVS rules, the FAA is conducting flight-testing at the

William J. Hughes Technical Center in New Jersey. Astronics has provided the Max-Viz 2300 and Max-Viz 1500 systems—the former to support baseline testing and the latter for observation of LED lighting.

"For rotorcraft, we believe EVS improves situational awareness and increases safety margins for pilots flying to and landing in all kinds of environments," said Geiger. "Once the FAA study is complete, we'll have a better understanding and additional guidance on what that will mean in terms of regulatory issues."

With Astronics Max-Viz now a line-fit for a growing number of original helicopter manufacturers, Geiger said EVS is recognized as an important piece of safety equipment for operators and

"For rotorcraft, we believe EVS improves situational awareness and increases safety margins for pilots flying to and landing in all kinds of environments."

— Tom Geiger, business unit manager

”







# Into DAY



## THE ASTRONICS MAX-VIZ ENHANCED VISION SYSTEM (EVS) ENHANCES PILOT SAFETY IN POOR VISIBILITY. BY CHRIS THATCHER

pilots in a wide range of missions, including firefighting, emergency medical services, law enforcement, corporate VIP, and oil and natural gas.

Astronics Max-Viz employs certified and practicing helicopter pilots to ensure it designs each evolution of its EVS products for these markets.

Over the years, helicopter operators flying with Astronics Max-Viz EVS have said these solutions have been instrumental in helping them steer clear of obstacles and execute safe takeoffs and landings in poor conditions.

"The ability to see is the greatest need of all, and the head-down Max-Viz enhanced vision system is the best safety

feature invented for aircraft since weather radar," said Ron Freswick, director of aviation for Global Express.

Erlanger Health System of Chattanooga, Tennessee, was among the first operators to install EVS in its Bell helicopters and believes that transformed its capacity for night operations. "The ability to see, even in darkness, [allows] our emergency helicopter flight operation to enhance airborne safety for our patients, pilots and public even further," said Steve Straughen, director of EMS operations. "The EVS was the clear and only choice for our operation."

Brad Pattison, a Bell 206 charter pilot, credits the Astronics Max-Viz EVS with helping him depart safely with a wedding party from a golf course in drizzling rain,

surrounded by tall trees and with little ground or sky illumination.

"The EVS was awesome," said Pattison. "About 700 feet above ground level after takeoff, the EVS indicated we would be entering possible IMC (instrument meteorological conditions). So, we stopped the climb and turned towards the city lights, and about one minute later were able to climb to 2,000 feet without a problem. The EVS assisted us in staying out of IMC weather because the clouds showed up so well on the display."

Max-Viz, acquired by Astronics in 2012, has been pioneering enhanced vision systems since 2001 when Dr. J. Richard Kerr, one of the founders of Max-Viz, developed a method to fuse video

images from multiple systems, allowing signals from a visible light source to be combined with the signals from an infrared source, to deliver a picture effectively turning night into day.

Nearly 3,500 Max-Viz systems are currently in use on aircraft worldwide, and Astronics continues to steadily grow its business with new customers and new product offerings. ✨

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MAX-VIZ

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A black helicopter with red and blue stripes is shown in flight, viewed from a low angle, flying over a dense city skyline. The helicopter's rotors are blurred, suggesting motion. The city buildings are visible in the background, and the overall scene is dynamic and high-energy.

# Delivering Productivity

PRATT & WHITNEY CANADA PROVIDES  
ENGINES AND SERVICES THAT DELIVER  
PRODUCTIVITY TO OPERATORS' BUSINESSES.



Pratt & Whitney Canada (P&WC) views 2019 with cautious optimism, believing it will be a positive year for the helicopter industry with a few caveats in the form of ongoing challenges.

In 2018, the company saw a gradual recovery in the oil and gas sector, which tends to be a bellwether for the helicopter industry overall. However, having managed nearly a decade of reduced oil and gas activity, P&WC expects the sector will retain its reduced cost structure and sharp focus on margins.

The company also saw increased use of helicopters for missions such as wind-farm inspections, which bolstered the utility sector overall. P&WC realizes, however, that costs will be a crucial factor in determining mission sustainability. Others facing challenges in 2018 were lessors, many of whom faced financial difficulties and were obliged to re-purpose existing aircraft and give them new mission capabilities.

The common thread for these and other similar trends is the need to drive higher levels of productivity for helicopter operators in all industry segments.

"We have enthusiastically taken on the challenge of working with operators to help them keep their costs down by developing new solutions that deliver greater efficiency and increase operator competitiveness," said P&WC's VP of marketing and sales for helicopter engines, Nicolas Chabée.

The company's objective is to bring new solutions to enhance the value of its customers' engines over their lifecycle and to partner effectively with its customers' businesses. To that end, P&WC announced several new initiatives in 2018 that it will continue to refine and build out this year, including its:

- Certified Pre-Owned engine program for its helicopter engines;
- Fleet Service Plan, a pay-per-hour maintenance program for fleets of two to five helicopters;
- ESP™ Platinum coverage for PW200 engines that includes environmental repair at overhaul;
- Tailored customer service programs for the security and defense sector; and
- Mission-ready services for VIP and head-of-state missions.

## THE POWER OF THE PW210

P&WC engines, in and of themselves, are a tremendous source of productivity for operators. The PW210 engine is a prime example. The most recent helicopter to enter service powered by this engine is the Leonardo AW169, which is considered an exceptional workhorse and highly competitive, based in large part to the attributes of its PW210 engines.

Factors that contribute to the engine's high efficiency include variable inlet guide vanes (VIGVs) and a full authority digital engine control (FADEC). The VIGVs improve engine operability and maximize the aircraft's handling performance, which means the helicopter can complete its mission more quickly and with greater ease. The FADEC incorporates an electronic engine control (EEC), fuel control unit, data collection unit and multiple sensors for main oil pressure, fuel pressure and more—all working together to provide automated and electronic functionality, resulting in significantly reduced pilot workload. The health monitoring capabilities of the EEC (it monitors the health of its inputs, internal hardware functions and external driver circuits) allow operators to plan their maintenance activities better and avoid costly, unproductive downtime.

Other PW210 engine features that empower the crew and automate otherwise manual tasks include:

- Automatic starting, light up, turbine temperature limiting and hung-start detection with a start-abort function if a problem is detected;
- Available limiting in all engine-operating regimes, which will prevent the engine from exceeding either a speed, torque or temperature limit;
- One-engine-inoperative pilot training mode;
- Electronics that provide the flexibility of detecting and logging faults and exceedances;
- Potential for precise creep and low-cycle-fatigue damage counting of critical components (can be done automatically because the software continuously monitors engine speed and temperature);
- In-flight, automated engine power assurance check or EPAC (this is being developed with the OEM and



pilots will be able to initiate it);

- Hot section inspections determined by the engine's condition, based on the EPAC results;
- A line maintenance kit that contains tooling to perform "on-wing" maintenance for seal replacement, oil servicing and compressor turbine wash; and
- The ability for the PW210 to serve as the helicopter's auxiliary power unit, saving the cost and weight of a third engine.

## AREAS OF GROWTH

P&WC sees significant growth potential in 2019 and beyond in several geographic markets.

Demand is burgeoning for helicopters, especially those in emergency medical services, throughout the Asia-Pacific region. The company has a significant footprint here and a large installed base.

Another area of growth is in security and defense.

"Forty-two percent of the helicopters we power are owned by governments around the world," said Chabée.

"They fly missions such as search and rescue, firefighting, transport and military. We have extensive experience in security and defense, including a long-standing relationship with the U.S. government."

More than half of the world's military helicopters are 20 or more years old. This means governments will be undertaking large-scale upgrade and replacement programs; some already have.

For example, in September 2018, the U.S. Air Force selected the Boeing MH-139 (modified AW139) to replace its fleet of UH-1N Hueys. As with the AW139, twin P&WC PT6C-67C engines power the MH-139.

"We have built our brand around the reliability of our helicopter engines," said Chabée, "all of which have levels of reliability that significantly exceed industry benchmarks. They are also known for performance in demanding and varying operating environments and are ideal for training helicopters—a mission where we are regarded as the engine of choice."

"We are driven to continue to invent the future of the rotorcraft industry. We have an ongoing dialogue with our OEMs to understand the trends and technology requirements of the next generation of platforms—including on-demand mobility, hybrid engines and more efficient powerplant solutions—so that we can concentrate our R&D efforts on what will bring value to the industry. Our goal is to be the engine of choice in all the markets we serve." ✨

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**GO BEYOND**

“We’re not finding anything else that falls into this price range and has the motion built into it and the flexibility of being able to have interchangeable components.”

— Mike Altman, CEO, Precision Flight Controls

# Virtual Reference Flying



THE COMPACT, COST-EFFECTIVE, PORTABLE, ADAPTABLE HELIMOD MARK III VIRTUAL REALITY SIMULATOR CAN HELP ANY PILOT LEARN, UPGRADE OR REFRESH THEIR LONG-LINE SKILLS.

BY AMITAV DASH

“So far, the reports back are that in most simulations, you’re looking at, on average, about a 50 percent reduction in training cost and time,” said Mike Altman, chief executive officer of Precision Flight Controls (PFC).

That stunning detail alone would be enough to make the price of the new HeliMod Mark III from PFC and Ryan Aerospace worthwhile. However, there is also the Mark III’s wealth of other strengths, such as its tiny footprint, ability to be reconfigured for virtually any type of aircraft, portability, available

motion platform and affordability. Add those in, and it makes you wonder if every operator flying with a long-line will eventually want to have one (or two).

The HeliMod Mark III is the latest innovation from the ongoing partnership between PFC and Ryan Aerospace (Australia) and comes out of the extensive simulator experience of both firms. PFC, which is based in Rancho Cordova, California, has been making fixed-wing simulators for almost 30 years. Ryan Aerospace, from Southport, Queensland, has been providing military

and civil customers with helicopter simulators for nearly 15 years.

The two companies have also worked together to produce the FAA-certified Bell 206/407 AATD (advanced aviation training device), which will soon be delivered to launch customer Honeywell.

While the HeliMod Mark III doesn’t yet have approvals to count toward training hours, the U.S. Federal Aviation

Administration (FAA) and other regulators have given their okay to use it as a training supplement.

With the primary feature of the Mark III being its virtual reality (VR) head-mounted display, much of that training will likely center around long-lining. That’s because the VR headset’s stereoscopic, 3D imaging gives pilots a 360-degree view of their virtual





surroundings. They can even lean out and look down and all around, providing for the kind of full immersion that is vital for long-line training.

Said Altman: "You can practice pretty much any form of vertical reference flying in the Mark III, including sling loads. For people doing forest fires, we can set up a fire 30 miles away and they can navigate to that, drop retardant and come back to do it all over again."

Each scenario can be preselected, or the instructor can change it as the student is flying. Weather can also be adjusted to go from visual to instrument conditions.

Each training flight is recorded to allow the student to learn from their efforts. Instructors are also able to view a student's flying in real-time on a separate monitor and can pause a scenario to provide an in-training lesson.

In addition to long-lining, Altman—an ex-military pilot who used to fly

transports—said the HeliMod Mark III has various other training applications: "Operators can use it to supplement hovering, practice point-to-point navigation and engine-out procedures. Pilots can fly in formation with other helicopters or aircraft; they can get familiar with unfamiliar territory; they can use it with other ground reference vehicles. It depends on the software they're using. . . . It's only limited by your imagination."

The Mark III is software "agnostic," which allows it to fit with a variety of software packages—such as VBS3, X-Plane 11, Digital Combat Simulator and Prepar3D—to suit different training scenarios.

Additional features like the D-Box motion base can be added to provide a more realistic flying experience. "There's that seat-of-the-pants feel that's like a real helicopter," said Altman.

The Mark III's flight controls also help

make it feel like you're piloting a real helicopter. The cyclic, collective and pedals are replicas of the model the Mark III is designed to simulate. They are also interchangeable and can be detached and swapped out in minutes. This is especially valuable for clients who need the Mark III to approximate each model of helicopter they fly.

Currently, the HeliMod Mark III is designed to mimic the Bell 206 and 407, but other models are being added. Additionally, PFC and Ryan can customize the simulator to fit any model of helicopter that an operator has in its fleet.

With an off-the-shelf price range of US\$25,000 to \$40,000, the Mark III occupies it's own unique niche.

Said Altman, "We're not finding anything else that falls into that price range and has the motion built into it and the flexibility of being able to have interchangeable components."

The Mark III is so affordable some enterprising customers have even found other uses for it. For example, the Royal Australian Navy is using its three customized simulators as a recruitment tool for aspiring aircrews.

Altman said there are even customers who want to set-up the portable HeliMod Mark III in their homes. Once they sit down and try the simulator at a trade show, customers start dreaming up all kinds of ways they can use this intriguing device and envisioning all kinds of locations where they can place it.

"We've had experienced pilots with tens of thousands of hours sit down and enjoy the heck out of it," said Altman. "We've had people with very little time in helicopters who adapt quite quickly. From new pilots to generals and admirals, everyone keeps coming back to try the Mark III. So, we must have a winner." ✨

# Tracking the



**T**he AW109 Trekker's recent entry into service expands the legacy of the popular Leonardo AW109 light-twin on the world market. The Trekker is strong in, and well-suited to, utility and parapublic applications and provides a unique combination of performance, payload and cost-effectiveness. As it nears certification from the U.S. Federal Aviation Administration (FAA), the AW109 Trekker has already logged orders for over 60 units. These orders have come from more than 15 customers in almost a dozen nations worldwide—with nearly 30 percent based in the Americas—adding to the more than 1,550 AW109s sold globally to date.

**WITH FAA CERTIFICATION ON THE HORIZON, LEONARDO'S POWERFUL, FLEXIBLE, COST-EFFECTIVE AW109 TREKKER IS READY TO MEET THE NEEDS OF A VARIETY OF UTILITY AND PARAPUBLIC OPERATORS.**

The robust and reliable 3.175-tonne (7,000-pound) AW109 Trekker design combines the AW109 Grand airframe—which has a large cabin that can accommodate six seats or two medical attendants and two

stretchers—with two powerful FADEC-equipped Pratt & Whitney Canada PW207C turbine engines. The Trekker adds Genesys Aerosystems core avionics and a full digital cockpit, for enhanced situational awareness

and reduced pilot workload; and rugged skid landing gear, for optimum versatility on unprepared terrains. The new model maintains the top-class maximum speed (over 140-knot/160-mile-an-hour cruise speed) and overall performance of the latest variants of the AW109 Grand/GrandNew, as well their modular and rapidly reconfigurable cabin with wide doors that allow ease of access and egress for passengers, medical attendants and patients. On top of that, the AW109 Trekker adds an even greater payload and utility-oriented flexibility of operation with all-new avionics and a highly competitive price.





# TREKKER



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The ergonomic, modular glass-cockpit with large-format, six-inch by eight-inch EFIS (electronic flight instrument system) displays can be customized to meet requirements for single- or dual-pilot VFR or IFR. To help maximize safety in single- and dual-pilot operations, and reduce crew workloads, the Trekker integrates a flight management system; 3D synthetic vision system with highway-in-the-sky navigation; helicopter terrain awareness and warning system; moving map and Global Positioning System functions; and ADS-B Out capability. Mission equipment based on tailored solutions can include a cargo/dual-cargo hook, rappelling

hooks, rescue hoist, loudspeakers, searchlight, engine particle separator, emergency floats, fire rafts, electro-optical/infrared camera, video

downlink, snow skis, mission console and foldable stretchers.

As the newest light-twin engine type on the market certified to the



latest standards and with the best productivity in its segment, the AW109 Trekker is ideally suited to perform a wide range of missions, including emergency medical service (EMS) and rescue duties, law enforcement and patrol, utility/ aerial work and firefighting, offshore transport, training, and government applications. It is also attractive in the passenger and VIP market—and has an initial order for this dedicated configuration from a customer in Chile.

The AW109 Trekker's performance characteristics allow for full Category A, Class 1 operations in hot and high conditions, over land and sea, and in a variety of demanding situations. Operators can also leverage enhanced reliability and safety with a transmission that has a 30-minute run-dry capability.

Less than a year after initial deliveries began, the AW109 Trekker has already started performing law-enforcement and EMS missions in Asia. To help support these crews, and every customer, with maximum operational safety and aircraft availability, Leonardo's global customer support and training network is providing AW109 Trekker operators with a range of service plans and a state-of-the-art training capability. ✨

# To Serve and Protect

## AW139

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