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JOSHUA VEST PHOTO

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by Geoff Goodyear



In Case of Fire...

How does one behave when confronted with an emergency or potential disaster? I am sure we would all hope to maintain a stoic presence complete with stiff upper lip. We spend a lot of time dreaming up disaster scenarios and how best to deal with them and then train for them. But until faced with the reality of an emergency, we can only guess as to how we may behave.

One might expect this anecdote to draw on some helicopter-centric fire suppression event, but no; I will draw on an example set by my own father some years ago at our home in Grand Falls-Windsor in central Newfoundland. It was a particularly dry summer with an extreme fire hazard throughout the province. Grand Falls-Windsor, like many towns in the province, is surrounded by forest on all sides. Indeed, most of us are so far back in the woods, we must come out to hunt!

Predictably, a nasty fire broke out close to town and began to bear down on our neighborhood. None of us kids were at risk because we had long since been thrown out of the house, but my folks were still there. Mother was sent packing while Dad stayed behind to protect his relatively new house and fight off any advancing conflagration with a mediumquality garden hose.

While waiting for perdition's flames to

consume the area, he hove to with a garden chair to watch the water bombers do their thing. Having a front row seat, he decided it was time for a drink. Being a community-minded soul (I think he was deputy mayor at the time) he thought it selfish to just hydrate himself, so he moved the entire bar out into the driveway to help hydrate passersby. It was a great way to use up half-full bottles of rum and should immediate evacuation be ordered, at least he would be able to save the bar.

It proved to be a very popular adaptation to an impending crisis and there was no shortage of patrons to the complimentary service. Several pedestrians — no, numerous pedestrians — took advantage of the evolving block party. The group then witnessed a Caterpillar D7 tractor come lumbering up the road. It was Frank, one of Dad's neighbors, who owned a small construction company.

"Frank," yelled Dad, (the deleterious effects of drinking and driving a large tractor notwithstanding) "Come in and have a drink."

"I can't," Frank immediately replied. "I have to go up the road and carve out a firebreak for the town. Big emergency. In a hurry. But thanks!"

Civic duty won the debate and Frank continued on his way.

As commercial pilots, we all train ad nauseam for emergencies, but until we are faced with the real thing it is difficult to predict how we may react or what the outcome may be. Dad acknowledged the exchange and went back to bartending combined with occasional use of the garden hose to douse "flankers" (sparks) from the advancing fire.

About 15 minutes later, a very sweaty and exhausted-looking Frank came walking back down the road from the opposite direction — sans D7 tractor. (For the rest of the story, we can call him "Flustered Frank.") He immediately broke left and sidled up to the bar.

"Can I have that drink now?"

"Why, of course," replied Dad. Looking a little puzzled, he inquired, "Where is your tractor?"

Flustered Frank looked up after his first sip of rum, sweat on his furrowed brow. "Sunk up to the driver's seat in a bog about one kilometer up the road."

And so continued Dad's neighborhood emergency response. As with all emergencies, real or anticipated, this one passed thankfully with no injuries (save the odd hangover) or loss of property. The forest has grown back, the birds continue to sing, and while under protest from Dad, Mother insisted the bar be moved out of the driveway.

As commercial pilots, we all train ad nauseam for emergencies, but until we are faced with the real thing it is difficult to predict how we may react or what the outcome may be.

Now, I am not advocating that we break open a bottle of Captain Morgan (the man in the red dress) to deal with emergencies, but quality training stacks the odds in our favor, giving us ability and confidence. But we should never assume that we will not get stuck in a bog somewhere along the way.

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AVIALL

by Andy Roe



Autonomous Control and Job Security

Humans were ready to fly the first airplane years before they did in the early 20th century, when a lightweight self-sufficient internal combustion engine became possible. On deck of course was the helicopter, which first flew only a few decades later because of its more complex mechanical design and peculiarities. Until heavier-than-air flight, men could elect to drive horse teams for a living, and when the automobile arrived, chauffeurs and taxi drivers were needed. But with such a revolutionary mode of transportation as the helicopter, men could boastfully proclaim to their friends that they were going to make a living flying helicopters. The aspirations toward achieving this presumed dream job continue today. But humans are now facing a competitor at the controls. Human desire for self driving technological advancement has created a new pilot and the traditional helicopter driver could be left by the wayside in favor of a machine.

The autonomous helicopter, with or without a human on board, is hard to describe from a pilotage point of view. Self driving vehicles have advanced so rapidly in recent years that the terminology we use to describe them is now obsolete. Computer, machine, robot and autonomy are each words that no longer accurately describe the function of what they really do. A computer used to be a large mass of hardware and wires, a machine was a mechanical apparatus, a robot was a science fiction device and autonomy was doing something by one's self.

The generic term autopilot has been used traditionally to describe the electronic and mechanical controls hidden behind the flight director head on the instrument panel. Far more complex, the autonomous system includes, amongst other things, advanced systems of artificial neural networks and synapses just as in the human brain. True artificial intelligence is now just a signpost for a stop a little further down the road. Interestingly enough, these extraordinary leap and bound advancements in technology have largely come about because most of the technical, electronic and mechanical components are cheap to purchase and easy to assemble into prototypes. 3D printing has made parts and components easier to reproduce as well.

It might be useful here to coin a new acronym: ITP (Information Technology Pilot) and personify this androgynous, autonomous system in the form of a robot we could put in the pilot seat. This might make it easier to relate to. So now we can ask that question again: is the ITP going to replace you on the flight deck in the near future? My answer, after telling everyone over the last many years that I would take up this career all over again in a flash, is now "yes."

I know what the ITP can do in the air because I work with two IT junkies who are the most up-to-date people I know in helicopter technology. We no longer have thought experiments on what the autonomous helicopter is capable of, but thought discussions. As the consummate instructor (after 28 years behind the cyclic I might just be qualified to say that) I spent hours with the IT chaps in a visual flight rules flight training device with advanced graphics showing them all of the complex maneuvers possible in all our pilot training programs. Although they had to discuss some of the more intricate maneuvers. in the end they agreed that all were able to be matched by autonomous control. Once again cameras, sensors, and accelerometers are all inexpensive to purchase and build with.

The helicopter business is still a great sector to target as a career option. If you want to learn to fly commercially, there are lots of great ab initio and advanced flight schools to choose from. But if you want to make flying itself a reasonable living, you might need to do a lot of research and put together an intense marketing campaign to make it work for you — especially since the autonomous helicopter is here and that technology will only get better and threaten your job prospects even more in the future.

The aerospace programs at the local college level have excellent diploma programs in avionics, turbine and jet engines, airport operations, unmanned aircraft systems and of course commercial pilot licensing. Your entry into an aerospace career might take a path such as this. I was born when the commercial helicopter was in its infancy. Pilots were needed to fly exploration, construction and support missions in remote areas. Three decades later, new pilots like me came on the scene to replace those retiring, but the exploration and construction work helicopters did remained much the same as in the beginning. Now, more than three decades later, the aviation industry has undergone further enormous changes: the environment is top of mind with everyone, and businesses have found ways to get things done more cheaply and efficiently, without so many helicopters.

Helicopters are inefficient, not environmentally friendly, and good pilots are not always easy to find. If the autonomous helicopter continues to be improved upon, the career you have in mind of learning to fly — and then finding a pilot job — might be further from your reach. The notion of wanting to become a helicopter pilot nowadays might just be that. With the right marketing campaign and effort you can still find yourself flying for a living, but it's much harder than it used to be.

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by John Carinha



Building Trust

Cycling has long been a passion of mine, providing an outlet of relief, pleasure and fitness. I do the bulk of my own bike maintenance and have a good sense of what needs doing — and when — to keep my ride rolling. Oddly, the bicycle often brings me to many a helicopter thought. The reason being, it's really a gyroscope: tilt it and it turns, turn it and it tilts. Equally, for such a simple means of transportation, it involves a large number of moving parts; parts that rarely get much thought until the laws of probability take hold.

Context and circumstance are everything, so imagine yours truly barrelling down a mountainside at speeds in excess of 70 kilometers per hour, hands in the drops, head tucked as the pavement below passes in a maze of grey. The sound of the freewheeling cassette was barely audible over the rush of air that passed over body and bike. The high of speed and two-wheel freedom was briefly interrupted by the clink of metal on metal. As my eyes reluctantly glanced down toward my front brake, I realized I'd lost a brake pad. Stopping power, time and distance are greatly affected in these situations and applying any front brake at that point to a racing wheel would have been equivalent to running it through a band saw. I had to make quick decisions and tame my panic in order to ensure a safe and complete stop clear of harm's way - and with

no bodily road rash. Fortunately, I was able to coast to an uneventful stop while feathering my rear brake.

Flight tests are an inherent part of our jobs as aviation technicians. The process requires the ability to put some hours on components, balance and track the main and tail rotor blades, and become familiar with any new avionics. Often when a job nears completion and ground tests are conducted and deemed satisfactory, the true test comes in actual performance checks under a variety of flight profiles. For me, this is one of the highlights of any job in aviation - to see, feel and hear how the collective work and effort of a maintenance team and/or facility has resulted in a successful flight test. I often refer to the initial flight as a "shakedown test."

One sunny spring morning, I found myself standing outside on a taxiway waiting to board what would be the inaugural flight test of a newly reborn Bell 205B. It had been completely overhauled and outfitted with a new avionics suite, and everyone was curious how the aircraft would perform both mechanically and electrically. We were soon airborne, and after some hover checks, we transitioned into forward flight. As we proceeded over an expanse of acreage and farmlands, cruising at a modest 2,000 feet above ground level, the master caution light warning system came alive. The dual warning lights blinked, drawing

For me, this is one of the highlights of any job in aviation — to see, feel and hear how the collective work and effort of a maintenance team and/or facility has resulted in a successful flight test. the immediate attention of myself and the pilot. As we scanned the caution panel, my stomach dropped as I saw that the transmission chip light had illuminated. The magnetic chip plugs on the transmission are meant to attract any ferromagnetic particles that may be derived from the internal moving parts of the transmission. The metal particles create a bridge between the magnetic plug and the housing of the detector, effectively closing the electrical circuit to illuminate the warning light.

The pilot pressed the master caution reset to no avail; the chip light would not extinguish. He motioned to me with a shrug of his shoulders in wonderment. I maintained a stoic expression but my inside voice was saying, "Hey, how about you take that collective and lower it, lose some airspeed, and get this bird on the ground?" In that moment, a time lapse played out in my mind of every single wire crimped, nut tightened, cotter pin installed and bolt safety tied. It became an "any minute now" moment. I envisioned the masses of moving metal above me just grinding to a halt and the helicopter dropping out of the sky. Needless to say, we landed without further incident and later discovered, through removal of the chip plug, that the ferrous filings found on the plug were conducive with the normal break-in period of the transmission.

In moments of arguable fight or flight, it can be easy to default to scepticism and doubt rather than faith and confidence. If a helicopter is the sum of all its parts working in unison, then its serviceability and longevity should be the culmination of the pride, accountability and skill that forms part of our service and workmanship. As with cycling, trust in the machine needs to exist with the operator. As maintainers of these specialized craft, the instillment of such trust begins and ends with us.



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ROTORBEAT

Airbus Helicopters brought an H145 in emergency medical services configuration and an H130 in passenger configuration to Helitech International 2016, which was held at Amsterdam RAI in the Netherlands in early October. **Mike Reyno Photos**

Helitech offers optimism

Attendees heard that the green shoots of recovery are appearing at the industry's largest European tradeshow.

Over 180 international exhibitors showcased their latest products and services at Helitech International — Europe's largest helicopter tradeshow — in Amsterdam, the Netherlands, over three days in October. Run in association with the European Helicopter Association (EHA), the event included a series of workshops and seminars from business, technical and safety experts, which ran alongside a bustling show floor.

The leading original equipment manufacturers (OEMs) all had a presence at the show,

including Airbus, Leonardo, Bell, Marenco Swisshelicopter, and Enstrom, as well as engine manufacturers Pratt & Whitney Canada and Safran Helicopter Engines.

One of the most popular displays at the show was Leonardo Helicopters' new virtual reality search-and-rescue (SAR) system. This allowed visitors, wearing a virtual reality headset, to experience a hoist rescue from an AW189 — using a real hoist and platform staging.

The seminar and workshop program included sessions from the Association

of Air Ambulances, the European Aviation Safety Agency, Flight Ascend Consultancy, AAR Airlfift Group, Waypoint Leasing, The Flying Bulls, and the European HEMS & Air Ambulances Committee.

On day one of the event, Flight Ascend Consultancy provided a detailed review of the oil-and-gas industry and how its decline has correlated closely with the downturn in international helicopter orders, while a separate session explored future trends in emergency medicine.



The strength of the helicopter emergency medical services (EMS) sector was one of the themes of the show. On Bell Helicopter's booth was an EMS Bell 429 operated by Heli Alps.



Leonardo Helicopters had a virtual reality search-and-rescue system that allowed visitors to experience a hoist rescue from an AW189.



Day two's sessions included the Business Leaders Forum, in which the panel discussed fleet finance, the commercialization of aviation operations, safety, and opportunities in the maintenance, repair and overhaul sector. Waypoint Leasing suggested that it has seen enough evidence of new contracts being made available to confidently say the "bottom had been reached." However, the helicopter leasing company urged operators to diversify their businesses to protect themselves against future downturns, while stressing that OEMs must not flood the market with new models at the first sight of a recovery to give time for the market to absorb the supply backlog.

The afternoon sessions of day two covered the growing unmanned aerial vehicle (UAV) sector, with visitors hearing Sky-Futures and DroneSAR stress how collaboration is the way forward. Oisin McGrath, CEO of DroneSAR, said that helicopter operators should see the technology as an asset rather than a threat, highlighting how SAR missions can be assisted by UAVs to ultimately help save lives. He went on to explain how the company was working on developing devices with a much longer battery life, with terrain capturing software and the ability to operate in treacherous weather conditions being two major areas of focus over the coming year.

The show's third day showcased how helicopters can create efficiency gains for European health services. A high profile panel, including speakers from AFHSH (the French association of air medical operators), the Association of Air Ambulances, the European HEMS & Air Ambulance Committee, Leonardo Helicopters and Bell Helicopter, discussed patient care as well as mission safety.

A new feature to this year's event, the Operators Forum, saw dozens of business owners from across the globe join together to talk informally about issues set to shape the future of the industry. Hosted by Gretchen Haskins, the CEO of HeliOffshore, the forum saw attendees discuss how they can make operations more profitable in the long term, as well as explore how a collaborative approach can improve safety across all markets.

The offshore industry was the topic of much debate, with René van der Haring, CEO of Heli Holland Group, sharing his views on what he believed had gone wrong with the market. He provided the operators with a detailed look at the future and how the sector will potentially stabilize.

"This year's event has shown there is a degree of confidence returning to the market," said John Hyde, exhibition director of Helitech International. "Oil-and-gas remains in a state of flux, but the industry itself will continue to function and over the next year or two business will return."

Helitech International will be back at ExCeL London, U.K., for its 2017 edition, from Oct. 3 to 5, where it will run alongside MRO Europe.

Safran launches 2,500 to 3,000 shp engine program

By Thierry Dubois

Safran Helicopter Engines has formally launched a 2,500 to 3,000 shaft-horsepower (shp) civil turboshaft program and is planning on having an airworthy engine ready by year-end.

The Pau, France-based company (previously known as Turbomeca) did not previously have an engine in this power range, and hopes the new development will find applications in the heavy helicopter segment. The Airbus Helicopters X6 program, still under wraps and expected to enter into service in the next decade, is understood to be the main target. Safran said it is also talking to Bell Helicopter, Leonardo and Sikorsky.

The new engine is being designed as a new-generation competitor of the wellestablished GE CT7, and will use technologies demonstrated on Safran's Tech 3000 program. Therefore, compared to the CT7, it will be more compact, Safran promised. "We are talking about 20 to 25 percent more power, in the same volume," Maxime Faribault, executive vice president for OEM sales, told *Vertical*. Fuel consumption will be lower than that of the CT7, by a percentage "close to two digits," he added

The new turboshaft's architecture will resemble that of the RTM 322. It will house 3D-printed fuel nozzles, which is expected to shorten the manufacturing cycle. Further details on the new engine will be unveiled next year.

Entry into service could take place by the end of the decade. The public introduction of a 2,500-shp version, late this year, will be followed by a more powerful one at the end of 2017.

Safran's largest in-production engine is the Makila 2A1, which has a takeoff power of 2,100 shp and equips the Airbus H225.



Erickson Inc. files for Chapter 11

By Oliver Johnson

Erickson Inc. filed for relief under Chapter 11 of the Bankruptcy Code in November, citing "numerous business challenges" that have impacted its operating results and asset values.

The company, renowned as the manufacturer and operator of the Erickson S-64 Aircrane, had been saddled with debt following its acquisition of Evergreen Helicopters in 2013, and the subsequent downturn in the helicopter industry appears to have been enough to force it to file for Chapter 11.

The Evergreen acquisition was later the subject of a shareholder's class-action lawsuit, alleging a breach of fiduciary duty, that was settled in June this year with an \$18.5 million payment from Erickson and the private equity company that controls it.

In Erickson's voluntary application for Chapter 11, it said it was seeking approval of \$180 million in debtor-in-possession financing, but will continue to operate "in the ordinary course of business" during the Chapter 11 process. It said it would file a consensual plan of reorganization within the first 50 days of the bankruptcy case — with the aim of exiting bankruptcy with a stronger balance sheet in early 2017.

The United States Bankruptcy Court for the Northern District of Texas approved key first day motions related to its restructuring, allowing Erickson to fulfill current key customer contracts, pay employee wages, honor existing employee benefit programs, pay certain suppliers and foreign creditors, and ensure that the company continues normal business operations throughout the financial restructuring process.

The court authorized Erickson to immediately access up to \$49 million of its \$66 million debtor-in-possession term financing, which the company said would, along with its approved debtor-in-possession revolver financing, provide it with sufficient liquidity to fund ongoing operations in the ordinary course of business.



"Unfortunately, Erickson is not immune to the numerous business challenges currently facing the helicopter industry which have placed downward pressure on operating results and asset values," Jeff Roberts, the company's president and CEO, said in a statement. "Operational integrity and safety continue to be our top priority, and this restructuring will in no way interfere with our performance and commitment to customer satisfaction. We have examined a number of alternatives and are convinced that a formal restructuring is the most effective path forward."

In a *General and Investor Q&A* posted on its website, Erickson noted that it "needs to streamline its aircraft fleet" as part of its restructuring, allowing it to lower its costs, stabilize its businesses, grow revenue, and diversify its product lines.

Following its acquisitions of Evergreen and Air Amazonia in 2013, Erickson had a mixed fleet of 86 rotary-wing and fixedwing aircraft, including Bell 212s, 214STs, Bell 412EPs, Airbus Helicopters AS350s, AS330J Pumas, AS332 L1 Super Pumas; Sikorsky S-61 and S-76C+ helicopters; and Beechcraft 1900D and Casa C-212 Aviocar planes — in addition to the S-64 Aircrane.

However, despite the streamlining of its fleet, the company said it "[does] not anticipate additional reductions in our workforce," which currently numbers more than 700, with 300 of those based in Oregon, where Erickson has its head office.

"Our Chapter 11 filing should in no way compromise or disrupt our ability to serve our domestic or international customers," a *Suppliers Q&A* stated. "We will purchase supplies and provide services to customers just as we always have. Employees will continue to receive their paychecks in the same manner as before and suppliers and service providers will be paid for post-filing goods and services utilized in the normal course."

Speculation that the company would be making an announcement on its financial situation was rife after it failed to release its quarterly results in early November. This followed a Securities and Exchange Commission filing that reported the resignations of board member James Welch and Quinn Morgan.

For more Daily News updates, visit verticalmag.com 😭



AW119Kx set for altitude increase

By Oliver Johnson

Leonardo Helicopters is working on an expanded flight envelope for the AW119Kx Koala, which it hopes to increase from 15,000 feet to 18,000 feet for takeoff and landing, and 24,000 feet pressure altitude (25,000 feet density altitude). The manufacturer is also aiming to expand the aircraft's certification for cargo hook operation to 20,000 feet.

High altitude testing for the expansion took place from August to September in Leadville, Colorado, and according to Gianfranco Cito, Leonardo's lead test pilot for the program, the manufacturer hopes to have certification from the European Aviation Safety Agency in early 2017. Leonardo expects Federal Aviation Administration validation to follow soon afterwards.

Cito told *Vertical* that the manufacturer has not yet decided whether the expansion will be available in the form of a kit or provided on the basis of certification, but said the ability to operate the single-engine AW119Kx (a derivative of the AW109 with skid type landing gear and Garmin G100H avionics) at high altitudes would offer new opportunities in the east and in South America.

"There are places in the east where you really need to fly high, so we hope to open a new market in that area where people flying over the mountains can use our helicopter," he said. "We are also expanding the cargo hook operation so it can be used at really high altitude, effectively, with a significant cargo. . . . So we really hope to expand the market in areas where the mountains are very high."

Cito said Leonardo began planning the expansion about six months ago. "We knew the Koala could perform at high

altitude because it's the same family as the [AW]109, which is already certified at 20,000 feet," he said.

The high altitude tests used an aircraft from Leonardo's test and demonstration fleet in Philadelphia, which was flown 1,500 miles over two days to Leadville for the program.

The test team expanded the envelope of the Pratt & Whitney PT6B-37A engine first, and, following approval from the engine manufacturer, then began expanding the helicopter's envelope.

The testing took the Koala up to 25,500 feet density altitude, and up to 20,000 feet with the cargo hook.

"We have done all the testing required for the certification and all the failures including entry into autorotation at 25,000 feet — so we have simulated engine failure, hydraulic failure, [and] SCS [autopilot] failure, and I must say that the helicopter performed very well," he said. "I haven't had any stall phenomena or other issues with the rotor, and no load issues on the rotor or another part of the helicopter. So we don't expect any life activity issue on the helicopter flying at that altitude."

The team also performed a full autorotation to the ground at 12,000 feet density altitude — even though it wasn't required for the certification of the expansion.

As for further development on the Koala, Cito said instrument flight rules certification was probably going to be the next step for the manufacturer, likely towards the end of 2017.

There are now 237 Koalas in operation worldwide — 65 of which are in the U.S. and Canada.



AW169 gains max gross weight increase

The Leonardo AW169 has obtained certification from the European Aviation Safety Agency (EASA) for an increased maximum gross weight kit that will provide up to 200 kilograms (441 pounds) of extra payload.

The manufacturer received approval of the kit, which takes the aircraft's maximum gross weight to 4,800 kilograms (10,582 pounds), on Oct. 31. Leonardo said the extra payload translates into a 100-nautical-mile range extension.

Existing customers will be able to retrofit the 4.8-tonne increased gross weight kit to enhance their aircraft's capabilities.

Leonardo said the 4.8-tonne AW169 responds to the evolving market demand for extended range and endurance in the light intermediate category.

Deliveries of 4.8-tonne AW169s were expected to start shortly after the certification was secured.

The type has already been selected for a range of duties including air ambulance, executive/ corporate transport, offshore transport and utility roles by customers worldwide.

Soon after news of the increased grow weight increase was announced, the manufacturer revealed it had also secured type certification of the aircraft from the Brazilian regulator, ANAC.

Of the more than 150 agreements signed for the AW169 to date, including firm orders, framework contracts, and options, over 20 of them are from operators in Brazil, with significant success in the executive/private transport sector.

The AW169 incorporates several new technology features in the rotor system, engines, avionics, transmission and electric power generation and distribution systems.

It is part of Leonardo's "family" of new generation helicopters that includes the AW139 and AW189 models, which share a common cockpit layout, design philosophy and maintenance/ training concept.





H135 Helionix receives EASA certification

The Airbus H135 has received a type certificate from the European Aviation Safety Agency (EASA) for its new Helionix cockpit.

Airbus Helicopters said the Helionix cockpit — it's in-house avionics system — offers operators increased mission flexibility and safety. The system has standardized features and is already available on the H175 and H145.

"The certification of the H135 with Helionix marks another milestone in the permanent evolution of this helicopter," said Axel Humpert, head of the H135 program. "The Helionix cockpit system with four-axis autopilot significantly reduces the workload of the pilot and brings the H135 to an unrivalled level of safety due to the additional functions and mission features it adds to the H135's capability."

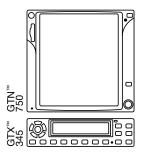
Besides the four-axis autopilot, Helionix offers an innovative cockpit layout that Airbus said helps to increase situational awareness. Designed with three large electronic displays, the cockpit is night vision goggle (NVG) compatible and includes a first limit indicator that highlights the appropriate engine instrument data for the pilot in one indicator.

Thanks to two touchscreen Garmin GPS/Nav/Comm GTN-750s, Helionix ensures an all-in-one GPS navigation and communication system. It also includes the Avidyne TAS620A traffic advisory system, which improves flight safety by assisting pilots in detecting and avoiding aircraft intersecting their flight path.

Initial deliveries of the H135 with Helionix cockpit will take place in 2017, and Norsk Luftambulanse AS -a helicopter emergency medical services operator - will be among the first commercial operators.

Ascent Flight Training, the United Kingdom Ministry of Defence's appointed training service partner delivering for the U.K.'s Military Flying Training System, selected Airbus as the aircraft service provider for the contract's rotary-wing element in May 2016. The U.K. MOD will be the aircraft's first military customer.





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IBF debate continues By Jen Boyer



prohibitive obstacles in proposed changes. BDN Aerospace Photo The heated debate over the United States Federal Aviation Administration's (FAA's) recommended policy change concerning certification of inlet barrier filters (IBFs) continues, with the helicopter industry finally feeling hope toward a compromise. After almost a year of providing comments, input and Congressional pressure, the industry has been invited to join a committee to review the policy, which may help remove prohibitive obstacles in the proposed changes.

Used by the military since the 1960s and the civilian industry since the mid-1990s, aftermarket IBFs — passive filter assemblies that prevent airborne particles from being ingested into aircraft engines — require FAA approval in the form of a supplemental type certificate (STC).

Since the addition of an IBF to an aircraft could potentially reduce air pressure to the



engine, especially once it begins to trap particles, STC applicants must provide procedures to avoid significant loss in power when an IBF is installed. Since turbine engines are designed with a power margin above minimum requirements, IBF manufacturers require periodic power assurance checks, and this has satisfied STC certification requirements to date. These power checks also let operators know when a filter must be cleaned or replaced, as increased particles in the filter will further degrade the power available.

Using this procedure, the industry's two aftermarket IBF manufacturers, Aerometals and Donaldson, have together received more than 20 FAA STCs for IBFs, which have been installed on an estimated 7,000 aircraft and flown a collective 20 million flight hours with an exemplary safety record.

Despite these statistics, earlier this year the FAA released a draft policy statement disqualifying the current STC certification practice of performing these power checks. While FAA Rotorcraft Directorate manager Lance Gant told a crowd at the HAI Heli-Expo FAA town hall in March 2016 there are no safety concerns with current IBF certification practices, the FAA policy document stated "performing periodic power assurance checks with the IBF installed based on the original (without the IBF installed) set of installation losses is not an acceptable means of compliance."

Instead, the FAA is calling for IBF manufacturers to work directly with engine manufacturers' engine installation data, perform specialized flight testing, and develop new charts reflecting reduced performance data.

Both Aerometals and Donaldson have stated these new, higher requirements could potentially bring an end to aftermarket IBFs.

"This policy would shut down the aftermarket IBF industry, setting [a] precedent that could shut down all aftermarket innovation," said Lori Symon, executive director of Aerometals. "What the FAA is requesting is extremely expensive and ultimately cost prohibitive."

One large concern — and long-time complaint by Aerometals and Donaldson — is a general lack of cooperation from engine original equipment manufacturers (OEMs). In order to perform comprehensive engine checks, the IBF manufacturers require access to the engine installation manuals with all the engine performance data. The OEMs have sometimes refused to share this information, saying the manuals are proprietary. Without this, aftermarket manufacturers are forced to use what data is publicly available, or recreate all testing and charts from scratch — a financially prohibitive option.

At a public hearing in July, the industry came together to share its concerns with the FAA about the recommended policy change and its potential impact on a technology that has improved helicopter performance, substantially reduced the cost of maintenance, and enhanced operators' margin of safety. Aerometals and Donaldson testified, as did Bell and Sikorsky, who each shared testimony in support of IBFs, along with several operators using IBFs.

Both Aerometals and Donaldson expressed their belief that Airbus convinced EASA to change the rules in its favor. Aerometals president Rex Kamphefner summed up the sentiment of the majority in his testimony.

"There are three companies that make inlet barrier filters. Aerometals is one. Donaldson is another. The third is Airbus for the aftermarket," Kamphefner said. "The FAA proposes to force the two U.S. companies out of the aftermarket [through the addition of 90 new requirements to the certification process]. Only Airbus will remain active."

Kamphefner claimed that in response to Aerometals' meeting with the European Aviation Safety Agency (EASA) to discuss filter certification for the EC135, Airbus proposed regulations to EASA that only the OEM could meet. EASA adopted the Airbus-recommended regulations and in turn is pressuring the FAA to standardize its regulations with those of EASA.

"Conclusion: Standardization is the highest priority to our bureaucrats in Washington," Kamphefner said. "Even if American manufacturers must be driven out of business; even if 25 models of legacy helicopters will be denied the benefits of filters; even if they have to lay off dozens of workers, the FAA believes that standardization with the rules developed in Europe for the benefit of European industry is the highest consideration."

Many speakers at the hearing shared experiences of the cost-savings from prevention of engine damage IBFs have provided companies and agencies such as U.S. Customs and Border Protection, San Diego Sheriff's air unit, and emergency medical services operators like Air Methods.

"There are more than 40 U.S. law enforcement agencies that use helicopters equipped with IBF systems, which generate millions of dollars in taxpayer savings by reducing the need for engine maintenance," said Paul Ross, manager of sales and support for Donaldson.

Others expressed concerns about a perceived double standard, where the recommended policy changes would require higher standards than unprotected engines, as well as citing a violation of the FAA's own Regulation 8100.16, which states a "policy statement may define a means of compliance, but it must be consistent with the language of the regulation and the regulatory preamble. Only the rulemaking process can effect changes to regulations. Policy statements must not contradict regulatory language."

A NEW HOPE

Before and since the hearing, the industry has been pushing for the FAA to come to the table to discuss how the two could work together toward a mutually acceptable solution. Both IBF companies have solicited and received help from members of Congress who have in turned written to FAA administrator Michael Huerta in support of industry.

Since taking testimony in July, the FAA has publicly remained silent on its process. Despite several calls and emails to the FAA public information office and Gant, *Vertical* did not receive a response to questions regarding next steps.

However, Matthew Fortuna, Donaldson's global general manager for Aerospace and Defense, said the FAA recently approached Donaldson and Aerometals to welcome the companies to participate in an Aviation Rulemaking Advisory Committee to review the policy. Plans for the committee are still in the works.

"We hope to work with them to highlight a clear path on what is required for STC approval, and assure it's realistic and achievable," Fortuna said. "And engine installations would have to be made available to aftermarket companies. Truly, from all of us, what has been encouraging in this long process is the support we've received from end users and the industry. We're very encouraged that the FAA is considering a different path at this point."

Rockwell Collins pitches avionics retrofit

By Thierry Dubois

At the Helitech 2016 show in Amsterdam, the Netherlands, Rockwell Collins pitched an avionics retrofit it will formally launch at HAI Heli-Expo next year in Dallas, Texas.

The Helisure cockpit display system is now available as an aftermarket product for medium and heavy rotorcraft such as the Airbus AS332 Super Puma and Dauphin, the Mil Mi-8/17 and the Bell 412, Guillaume Zini, a senior system engineer in charge of marketing for civil helicopters, told *Vertical*. The suite uses 6×8-inch displays, and various configurations, between two and four displays, can be built.

The system has been designed for straightforward interfacing with existing autopilots and flight management systems. It features synthetic vision and terrain awareness and warning systems on the main flight displays. A multifunction display can accommodate a moving map, a video feed, maintenance information, system synoptics or, as an option, a crew alerting system and engine parameters. The Helisure suite is compatible with nightvision goggles, Zini noted.

The key design driver has been to make the retrofit affordable for operators — for example, the avionics suite does not feature touchscreen. To make the hardware easy to integrate, display depth has been halved, compared to the standard found on recent helicopters.

Despite the lower cost, mean time between failure is to remain at a high level — 5,000 flight hours, according to Zini. The quality of the controls — such as knobs — is unchanged, he added.



Getting a Gryp GrypMat's rubberized tool tray launched By Ben Forrest

As a mechanic in the United States Air Force for the last eight years, Tom Burden knew the frustration of having tools slide off an aircraft as he worked on it.

He spent long stretches of time working on a solution in his basement, trying to create a flex-

ible tool tray that would grip tools while resting on the curved surfaces found on aircraft bodies and wings.

"I worked on the product to get it into production for three years, pushing to get it to raise capital and get the chemistry right," said



Tom Burden is the inventor of the GrypMat, an innovative tool tray designed specifically for aircraft mechanics. **Ben Forrest Photo**

Burden, 26, an F-16 mechanic who joined the service right out of high school.

The result of his labor is GrypMat, a rubberized, non-marring, non-slip, anti-static tool tray designed to give mechanics a safe and secure surface to store tools without worrying about damaging an aircraft.

"No magnets, just high-end friction," said Burden. "If it gets gunked up with grease, dust or any dirt, just running it under water using a damp rag will bring it back to life."

GrypMat is made out of a polymer-silicone blend and has specific properties to make it resistant to Skydrol hydraulic fluid, JP-8 jet fuel and methyl ethyl ketone (MEK) solvent, said Burden.

It's said to go where others don't, holding tools at angles as high as 70 degrees.

"The key things that it's doing is, it's preventing scratches," said Burdem. "It is keeping your tools accountable, so they're not being set inside the engine."

GrypMat launched at the Experimental Aircraft Association (EAA) AirVenture Oshkosh Fly-In and Convention in July 2016 and sold out all of its in-hand product, said Burden.

"From EAA we had a really good show, so I felt like a lot of mechanics [have] the same struggle that I was having on the F-16."

Burden said he had been focused on the internal structures of shipment systems of Grypshon Industries — the company that created GrypMat — as well as taking orders and launching new products.

The original GrypMat measures one foot by two feet and will be re-vamped with new handles, a measuring system and better branding, said Burden.

At NBAA-BACE, the company also showcased a medium-sized GrypMat that measures 11 inches by eight inches and a small version that measures 11 inches by six inches.

He predicted the company would sell three times as many products at NBAA-BACE as it did at Oshkosh.

"I think the relationships gained from the show are going to be extremely beneficial," said Burden. "There were a lot of exciting things that happened with the show."

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DART expands European support

By Oliver Johnson

DART Aerospace has opened a sales office in the U.K. as it seeks to expand its support in Europe and firmly establish its presence in the international market.

The Hawkesbury, Ontario-based design and manufacturing company, which produces more than 5,000 products for the helicopter and aerospace industry, announced the expansion during the recent Helitech International tradeshow held in Amsterdam, the Netherlands.

Based just outside London, DART's U.K. facility is its sixth in total, but first outside North America, and the company said it would act as a catalyst for rapid growth in a region that already represents its second biggest market.



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"We've dealt with the European accounts from North America for a few years, but now that we've established a new office, we can see great growth potential — we see the difference it will make," said Simon Langlois, marketing specialist at DART.

Working from the office will be sales representatives Lewis Brooks and Andrien Dillard, who will serve customers in Africa and Russia, in addition to those in Europe. Brooks told *Vertical* that DART has seen significant growth in its sales and support business in Europe over the last 18 months — and that the new office would help continue to expand its presence and support in the region.

"It's all about the reactivity for us, and by having an office in the region we can now react in a timely manner and access operators much easier for support and training as well," he said.

Brooks added that having sales representative with in-depth knowledge of local operations and cultures is a huge benefit to customers.

"It's important to have people who know the market they're serving — and that's what DART has done," he said. "We've put people [in place] who know the industry, who know the customers, who know the nuances of their cultures as well, and have the full support of logistics on their time zone.

"We're looking to expand the team, expand what we can do . . . and just build from the bottom up," he said. "At the moment, it's a minimal change, but it's having a large impact, and we know where the next steps need to be."

The development follows the company's launch of its Approved Maintenance Center (AMC) network in January this year, which aims to give small- and medium-sized operators access to dedicated partners that are qualified to offer DART aftermarket solutions.

"We're signing partnerships with key maintenance centers in every region of the world," said Langlois. "We help them to promote the brand and they have all the tools in hand to promote DART within their customer base in their region. For instance, in Europe now we have a German partner, an Italian partner, French, U.K. and Spanish partners. I think it's a good start, and we're seeing good results."



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Flight sim training device opens at Edmonton International Airport

A state-of-the-art helicopter flight simulation training device opened for business at Edmonton International Airport (EIA) on Nov. 10.

The HNZ Topflight \$3.5-million Airbus Helicopter AS350 B2/H125 Level 7 flight training device (FTD), manufactured by Frasca Flight Simulation, provides synthetic training for one of the most popular commercial helicopter types.

It is said to be the first and only Level 7 FTD in Canada, featuring an enclosed flight deck area, physical controls and a vibration cueing system, among other features.

The new device is the latest initiative of the Alberta Aerospace and Technology Centre (AATC) and was created through a partnership involving Canadian Helicopters (an HNZ company), ElA, Frasca, Canadian North, Edmonton Economic Development Corporation (EEDC) and the Government of Alberta.

Alberta now offers complete, start-to-finish aviation training ranging from basic aviator skills to advanced technical certifications.

"We are pleased to partner with AATC with the support of EIA and the Alberta government to bring this flight simulation training device to Edmonton," said Don Wall, president and CEO of HNZ.

"We believe that the introduction of this device into our training program will enhance our industry leading safety standards for the benefit of our crews and customers. Synthetic training is recognized by Transport Canada and our major customers as being a highly effective tool, and this FTD represents the very leading edge of technology in simulated flight.

"As a result of this acquisition, we will realize significant safety as well as environmental and economic benefits, and we expect that other operators in the industry from across North America will also want to avail of this Edmonton-based opportunity."

While it can be argued the single-engine helicopter industry lags behind fixed-wing and multi-engine helicopters when it comes to flight simulator training, that may be changing.

"Flight training device technology in the last few years has really made strides in being able to become affordable and give the high performance necessary ... so that a single-engine helicopter pilot will accept it as a viable training



The \$3.5-million Airbus AS350 B2 flight training device (FTD) is believed to be the first Level 7 FTD in Canada. **Mike Reyno Photo**

alternative," said Mark Olson, synthetic training flight manager for Canadian Helicopters.

Olson added he thinks it's time to move the industry forward.

"Up till now, most emergency procedures could only be talked about," he said, noting an instructor can't cause a governor failure or engine fire while training pilots in real aircraft.

"You can talk about them, but when you actually give the pilot that failure, he has to actually react and muscle memory does not exist if you've only ever talked about stuff."

HNZ has submitted a proposal to Transport Canada for a program that would provide about 50 percent credit for recurrent training in the simulator, with the other half completed in an aircraft.

"The check ride is still going to be done in the aircraft and we're not changing that," said Olson. "But all those other emergencies that you can't do in the aircraft, we can do in here."

HNZ hopes the simulator will provide in the range of 50 percent savings over training in a real aircraft to start with, said Olson. The simulator will be open for dry lease, and allows instructors to save training scenarios on a data stick so they can be repeated.

It also features Frasca's TruCue simulator cueing and vibration system, which provides critical vestibular feedback to the pilots. "The visual systems are very powerful along with the vibration and the sound," said Olson. Response from the industry has been very positive, with many operators looking to take their training to the next level, he said.

"We don't have accidents because our guys can't fly helicopters," he added. "They can fly the helicopter. It's the decision-making model that has to now be challenged. How do they, why do they fly the helicopter into those scenarios? Why do they take off in bad weather or push the bad weather?"

Olson estimated there are around 600 AStar helicopters in Canada and 70 AStars in HNZ's worldwide fleet. Whether the company will bring in pilots from some of its international operations for training is still under discussion, he said.

"We're certainly going to try to get the majority of our people coming through this device."

Olson added that Frasca was excellent to work with during the development of the simulator.

"It's a big project, building one of these things," he said. "You don't order these off the shelf. It's two years going back and forth to the factory and dealing with engineers."

In addition to pilot training, the Alberta Aerospace and Technology Centre will act as a nucleus of technology education, research and development. AATC intends to pursue and support research and development projects that can enhance aerospace and aviation-related technology, developing economic opportunities in the technology sector that will boost economic growth for the region.



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Offshore enduring 'unprecedented downturn' By Oliver Johnson

An "unprecedented downturn" in the offshore helicopter sector has seen the global in-service offshore fleet fall by over 180 aircraft since the end of 2015, and resulted in up to 75 percent of the fleet being valued at below base level, according to figures released in October by Flight Ascend Consultancy.

In a seminar detailing the company's helicopter market outlook at Helitech International 2016 in Amsterdam, the Netherlands, the company's analysts said the current conditions — caused by low oil prices, the grounding of the Airbus Helicopters H225 and AS332 L2 Super Puma types, and fleet cuts resulting from CHC's Chapter 11 bankruptcy protection — had hit the heavy segment particularly hard, with the number of offshore in-service heavy helicopters falling by 38 percent since the end of 2015.

"This is an unprecedented downturn," said Chris Seymour, head of market analysis at Flight Ascend, highlighting the situation facing those operating offshore over the North Sea. "Undoubtedly there was already an overcapacity in this market prior to the groundings, as a result of the cutbacks due to the oil price. There were around 100 combined H225s/S-92s at the start of the year [performing operations in the North Sea] that's now being met by 79 aircraft. We calculate only 59 of these are involved in multiple daily rotations, meaning there is still spare capacity."

The excess capacity will be exacerbated by the return of an enormous number of aircraft from CHC, which is aiming to eventually reduce its fleet from 230 to 75 aircraft. According to Flight Ascend, CHC has already returned 70 of an initial group of 90, and among the rejected leases are 30 H225s (the vast majority of its H225 fleet), 19 AS332s, 16 Sikorsky S-76s, and 20 Leonardo AW139s.

Ben Chapman, Flight Ascend's U.K. valuations manager, said the impact of the full fleet rationalization would probably not be felt by the market until 2018. "However, we are seeing indications of people looking at the expected oversupply of the aircraft in the market," he said, with the impact being low valuations that "have not necessarily reached the bottom."

"We're seeing that 32 percent of the entire offshore operating H225 fleet is being handed back by CHC into the market," Chapman continued. "The time it will take these aircraft to enter into the market will be key, and exactly how they will be absorbed is yet to be understood." Affecting this is the number of aircraft being kept in storage by their owners — a trend Chapman said was "a prudent option" given current market conditions. "We are [also] getting reports of a lot of them — not all of them — but a lot of them not being in serviceable condition," he said. "So what we're seeing is a delayed entry into the market for the amount of time it will take these aircraft to be returned to a saleable condition."

The downturn hasn't been limited solely to the offshore sector, however, with Flight Ascend's figures revealing a total of 313 turbine civil and government aircraft deliveries up to October 2016, compared to 454 at the same point last year. Piston deliveries also fell from to 131 from 171 this time last year.

While all manufacturers saw their delivery numbers drop, the figures showed that Airbus Helicopters' share of the turbine civil and government market increased to 42.8 percent, with Leonardo overtaking Bell with 19.2 percent over 18.5 percent, through the emergence of the AW169 and the strength of the AW139.

By region, Europe increased its share of turbine deliveries to 35.5 percent (111 helicopters), while Asia-Pacific received 96 aircraft, representing the second largest amount at 30 percent. Flight Ascend said this was driven largely by China, which took 56 of the 96 deliveries. According to the company's figures, deliveries in North America are set to decline, with only 70 units completed by the start of October.

Orders are also down across the board, but the emergence of the market in China was

highlighted as a note of optimism. Since 2007, the number of aircraft in the country has grown by 495 percent (a total of 831 units), which compares to a growth rate of 22.5 percent in the rest of the world. Of the manufacturers, Robinson has the largest fleet in China, with 293 aircraft (a market share of 29.3 percent); followed by Airbus with 212 (21.2 percent); and Bell third at 140 aircraft (14 percent).

"The dominant models in China have been the Robinsons — R44s and R22s — and that's to fulfill the large training requirement in the country," said John Maloney, Flight Ascend's fleet research manager and OEM data relationship manager, while noting that the restrictive airspace issues in China still remain a barrier to the industry's development.

Longer term, Flight Ascend said that with a third of the total worldwide turbine fleet now being over 30 years old, there will be a significant fleet replacement opportunity over the next 10 years. The company forecasts 9,150 deliveries over the upcoming decade, representing a value of \$57 billion (at 2016 base values).

Over that time period, Flight Ascend expects North America to take 33 percent of deliveries, while Asia-Pacific will pass Europe to receive the second highest number of aircraft — as long as China's predicted continued growth materializes.

"Yes, it's going to be a challenging year this year — and probably a challenging year next year as well — but longer term, we're still in a growth market, and there are new models coming in to help stimulate demand," said Seymour.



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Cougar Helicopters' new hangar in St. John's, Newfoundland and Labrador, can fit five Sikorsky S-92s alongside each other, without the blade tips touching. It incorporates many cutting-edge technologies, including the use of in-floor power pits. **Heath Moffatt Photo**



Cougar Helicopters has officially opened its new C\$44.8-million headquarters in St. John's, Newfoundland and Labrador, more than doubling its capacity to serve the offshore oil-and-gas market in the province.

The company has operated from the facility since early October, but it was officially opened Nov. 18 following a ribbon-cutting ceremony that saw Cougar's chief operating officer, Hank Williams, joined by executives from parent company VIH Aviation Group; partner Bristow Group; oil company customers; and Newfoundland and Labrador Finance Minister Cathy Bennett.

The new facility spans two enormous buildings at St. John's International Airport, with one containing a passenger processing terminal and the company's offices, and the other a hangar and office space for the company's maintenance team. Combined, the two facilities span close to 100,000 square feet, and, together with Cougar's existing search-and-rescue (SAR) hangar and its two ramps, gives the company a footprint of about 17.46 acres across the "Cougar campus" it has created at the airport.

"This facility is an investment in Cougar's requirements for today, but I think more importantly, it is an investment in Cougar's requirements for the future," said Williams at the opening ceremony. "This facility is built with about 35 to 40 percent overcapacity for what we need for current operations. That represents Bristow, VIH and Cougar's belief in Newfoundland and Labrador, and more specifically the oil-andgas sector, and where we believe it is going and we want to be front and center [for] the entire Newfoundland offshore industry."

Bennett, who represents the constituency in which the company is based, said Cougar was "an important player" in the province's oil-and-gas industry, and praised the commitment it had made in building the state-of-the-art facilities, despite the current global downturn in the sector.

"We thank you for not only your commitment and professionalism, but also the compassion and heart you have shown in trying times," she said. "Today is about the future. It's about a new facility designed for today and future growth. And it's about the investments of a proud company — and proud companies to make sure that the possibilities they see come to fruition... There is no doubt that the future [for the offshore industry] is bright."

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Interviewed by Oliver Johnson



Gretchen Haskins is chief executive officer of HeliOffshore — the global, safety-focused association for the offshore helicopter industry.

VERTICAL: How did you get into the aviation industry?

GRETCHEN HASKINS: I used to ice skate.... There's something you weren't expecting! My dad spent all of his money paying for me to ice skate, and so then felt it would be a good idea for me to go to a military university that would pay for my education — and that is literally how I got into aviation. I went to the U.S. Air Force Academy and they taught me to fly. I developed a strong interest in human factors engineering, and I was hooked on aviation from there.

My whole career has been spent trying to do human factors well - trying to ensure that the people in the aviation industry have the tools, equipment, procedures, environment and leadership they need to do their jobs well. And I started doing that by flying myself, then working in the procurement of ballistic mission systems, then the design of military systems, then the certification of military systems, then in air traffic control, and then in regulation. And now, helicopters. And in all those jobs, I've seen different aspects of the same issues going from how people in the front line make decisions, to how people in the boardroom make decisions. I've really been doing the human factors engineering on that in my career, and trying to ensure that all those groups can work together towards a common cause, making the industry safe, effective, efficient, and that the people can play their part in all of that.

V: How did HeliOffshore come into being? What attracted you to join it?

G.H.: There was a group of helicopter operator CEOs that had the vision to decide that safety is not a competitive issue — it's a collaborative issue.

Gretchen Haskins

Although they were fierce commercial competitors, they formed HeliOffshore, and asked me if I would be interested in setting it up and leading it. It was an offer I couldn't resist. It was so exciting and inspirational to see what they were doing. I don't know of another organization like it, where competitors have said, "We'll pool our resources, we'll pool our intellect, we'll work together, and we'll extend our hand to everyone who has a stake in offshore helicopter transport, including the manufacturers, the oil companies, the suppliers, the other operators worldwide, large and small, research institutions - everybody - and have an organization that's really going to have this conversation across the industry." What are the areas where we could focus to make the greatest different to safety? How can we get into action to get those things done, ensure that they're planned, and that there's a timeline, there's resources, and we have a way of having oversight to see if we're getting what we really want? We call it "Global Collaboration, Frontline Results," And I think that kind of summarizes our remit.

We don't believe anyone should go to work and not be assured that they're going to come home safely to their loved ones, and so we're focused on what it will take to get there. We have a very strong safety record in our industry, many forms of transport would love to have the performance we have, but in aviation one life lost is one too many, and we're determined to work together to ensure that we really drive performance even further.

V: How wide is your working scope as an association? Do you have representative responsibilities beyond the issue of safety?

G.H.: We figure if we get safety — if we're doing safety really well together — everything else follows. But our only remit is safety.

V: Are offshore operations becoming safer?

G.H.: Yes. And there's lots of evidence for that. I see improvements happening in many areas all the time. And I also see that there is more we can do, and so that's where we're focusing.

V: You have had tremendous growth over the two years you've been in existence. How have you achieved that?

G.H.: We have over 100 members from every region of the world, and we're really excited about that. And it's interesting to see that that's happened at the same time as the downturn in oil prices. What I see is a huge commitment to safety in our industry, and we're able to get things done that are difficult for any one organization to do by themselves. For example, we've researched improvements that could be made to the terrain avoidance warning system, that helps a crew to know if they're coming towards an obstacle or the water. And getting something like that implemented usually takes many years, but we can get together in one room the CEOs of the suppliers, the prime contractors at the OEMs, the regulators, the operators, the oil companies and we can say: "If we all work together, this would be the critical path schedule to get it done by the end of 2017," and they all commit to it. We're on track to deliver it by the end of next year, and it's just fantastic to see.

There are so many examples I could give you. We did eye tracking research to see where the pilot really looks when using an automated cockpit. It was a collaborative effort: we paid for the researcher; Airbus donated time in the simulator; and Babcock, CHC and Bristow put forward the pilots. This is providing fundamental data to help us improve procedures, training, and even future designs. Instead of everyone having to pay for that separately, we pay for it once, we pool our resources, and we can get the results.

V: The organization is not-forprofit, but how are you funded?

G.H.: People pay a membership fee to join. We have had instances of specific projects getting additional funding or donations to the group for safety projects. And we also get huge generosity from our members in terms of making our resources available. So, for example, Airbus, Sikorsky, Leonardo, and Bell are all working on flight crew operations manuals for pilots by working with teams of engineers and pilots to develop and implement the procedures. It takes time to do a project

like that. But we've had the commitment of resources from CEO level in those organizations to make the project a success.

V: So the current downturn in the industry hasn't affected your funding at all? Your members are still happy to make that investment?

G.H.: Yes, and I think the reason for that is really safety is at the heart of our business and everybody gets that. This is walking the talk. They mean it. But even beyond that, I think it's important that we're constantly having a conversation with our members about really where the priorities are, where we should focus to get the most value, so we're not trying to do absolutely everything. We're trying to do a targeted and focused set of improvements, and then move on to the next and then the next. I think that's important. The whole ethos of safety management systems is to understand your priorities, make sure you have an action plan, and make sure you have evidence of whether your actions have had the desired effect. And we're basically just doing that as part of an industry-wide collaborative effort.

V: How similar is the helicopter world to the other work you've done?

G.H.: I've seen lots of similarities outside of aviation, and in different parts of aviation. Ultimately, you just need to have a good understanding of what are the real goals of the people in the system, and then what do they really do on a typical day, and how could you help them do it better.

I see how the communication and connectivity between what happens on the front lines and the investment decisions in the boardroom is really important. So I've often tried to help describe what "good" looks like for the future in the front line in a way that allows people in the boardroom to make better investment decisions and focus their resources. I'm looking at where we invest to get that performance and how we measure and judge whether we're getting what we want.

V: Do you see the ethos behind HeliOffshore — sharing information — spreading into the mainstream helicopter industry?

G.H.: I'm a huge fan of big data. Because with big data, you can see what's happening on a typical day, and you can start to measure safety performance, which gives you lots and lots of data quickly, and you can be proactive rather than reactive to

incidents or accidents, which are thankfully quite rare. You can really see if your actions are having the required effect if you have big data, which makes safety more like productivity or finance — you can see how well you did today, and you can improve how well you're going to do each day when you can see what's happening.

There are certainly outputs from our collaboration that could benefit onshore helicopter operators; for example, we looked at the use of the health and usage monitoring systems, and we got all the experts in our industry together to write a best practice guidance. That's available on our website — www.helioffshore.org — so anyone, in any sector of the industry, can download it.

We're also producing training videos to enhance the use of automation — these will also be on our website. So we're working to make sure everything is widely available for the benefit of all. We are as transparent as possible — our strategy, our plans, our products, our timelines and all sorts of information is on our website. If anyone wants to find out more, it is worth them going there.

This interview has been edited and condensed.

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Having to always work in a high-altitude environment makes flying for the Nevada Division of Forestry (NDF) Air Operations a constant challenge — but the terrain is some of the most spectacular in the world.

N9875F

High Sierra

The Nevada Division of Forestry Air Operations unit plays an essential role fighting fires in the state, especially on the eastern front of the Sierra Nevada mountain range.

Story & Photos by Skip Robinson



Ithough a relatively small operation with three helicopters, the Nevada Division of Forestry (NDF) Air Operations program is an extremely useful component of Nevada's yearly firefighting efforts. The program is based at Minden-Tahoe Airport in the Carson Valley, at the base of the

eastern Sierra Nevada mountain range at an altitude of 4,700 feet. This central location gives NDF the flexibility to respond to fires throughout the range.

The NDF has three Bell UH-1H "Super Huey" helicopters, and while it operates and is available to assist across the entire state, its main mission is to stay near the eastern front of the Sierras. This area ranges from the Nevada-California border in the south, to Reno in the north and west to Lake Tahoe. To the east it covers the Eastern Sierra and the Carson Valley. As such, operational altitudes range from 5,000 feet to well over 11,000 feet, but the larger and most aggressive fires normally burn at 6,000 to 8,000 feet.

"The weather conditions in these mountains, with high winds and hot summer temperatures, means the division needs to get on an initial attack immediately with as much equipment as possible," said Tom Knight, aviation services officer and program manager with NDF Air Operations. "We have very expensive homes that are tightly fit around Lake Tahoe and the surrounding areas, so our helicopters try to start dropping water as soon as possible."

The NDF will work with California fire agencies if a fire is crossing state lines, and it also works closely with federal agencies, which can provide multiple types of air tanker and helicopter assets during initial attack or campaign fires.

A NEED FOR POWER

The NDF procured its first helicopters in the early 1970s, when it obtained three military excess property Bell TH-13Ts — the military variant of the Bell 47G3B-1. Obtained with assistance from the United States Forest Service (USFS), these light helicopters provided aerial surveillance and command and control functions. The TH-13T turbocharged piston engine gave sufficient performance when working below 8,000 feet, but with its limited capabilities, the aircraft saw limited use around the eastern Sierra front. The NDF retired the TH-13Ts in 1991 due to their age, the difficulty of obtaining a reliable parts supply, and the need for a more suitable platform to operate in the high and hot conditions of the Sierra front.

In replacing the TH-13Ts, the NDF sought a more capable helicopter that was able to perform direct fire attack and move fire crews. The Bell UH-1H Huey ultimately took the top spot, thanks to its availability and performance. Fortunately, the U.S. Army was in the midst of retiring hundreds of excess — but still operational — UH-1Hs. In September 1993, again with assistance from the USFS, the NDF acquired its first UH-1H helicopter. A few years later, with the aircraft proving its suitability to its role, the NDF got its second UH-1H.



Since this photo was taken, the NDF has upgraded its 240-gallon Bambi Buckets to the more capable PowerFill version that allows the helicopter to use water from many more sources.









The NDF operated the Hueys through the '90s and into the 2000s, but the organization's managers knew there were performance upgrades available for the UH-1H that could give a large increase in capability.

"We operated our stock specification Hueys to [their] extreme on almost every flight, as we need to lift as much water as possible on every turn," Knight told *Vertical.* "We start operations at 5,000 feet, exactly where the stock Huey's performance drops off. From there we go to 6,000 to 8,000 feet on normal firefighting operations, but go well over 10,000 feet in some instances."

Because of this, in 2006, the NDF began researching modifications to allow increase the Hueys' performance. In the early '90s, the California Department of Forestry and Protection was the first to upgrade its UH-1H series to the "Super Huey" specification. These initial upgrades included replacing the original Lycoming T-53 1,400-horsepower engine to the more powerful 1,800-horsepower T53-L-703 engine. A Bell 212 main transmission, tail rotor gearbox, 212 tail boom and 212 main and tail rotor blades were then added. The increase in performance gave the California department's UH-1H the ability to operate at well over 10,000 feet and still lift a load. After looking at the upgrades, NDF aviation managers decided they would perform some of the same modifications to their Huey fleet.

From 2006 to 2008, the NDF converted its two Hueys to the Super Huey configuration, and then added a third Super Huey. Over time, the NDF added the BLR Aerospace FastFin modification and tail boom strake kits to increase the helicopter's high altitude tail rotor effectiveness.

The NDF then added the ability to long line and perform external load operations (with bulged pilot windows and gauges), and added tundra pads to the rear of the skids to increase the helicopter's stability during snow landings. Cockpit modifications included Diamond J gauges, a Garmin color moving map system, and a global positioning system. Because the NDF does not fly at night, night vision goggle modifications were not completed in the cockpit.

The NDF's Hueys have never used belly tanks because of weight — from the beginning there has been a focused effort to keep the Hueys down to the lightest weight possible — but instead use 240-gallon Bambi Buckets with the new PowerFill function.

"The Bambis with PowerFill are just awesome," said Knight. "These give us the ability to go to virtually any stream or water source we can find to get water. We use the buckets because they save us 300 pounds over a tank and give us the ability to directly attach it to the belly during cheatgrass and sagebrush wildfires and then go to a 100-foot line to get to water sources within the tall trees of the forest."

With over 20 years of service, the updated Hueys have provided the NDF and the taxpayers of Nevada with a cost-effective, efficient and safe tool for responding to wildland fires and emergency incidents, carrying more firefighters and equipment for initial attack operations, and delivering more water in support of firefighting activities.

THE NDF TEAM

The NDF has three full-time pilots and one seasonal part-time pilot. All do annual flight reviews from Flight Check Ltd., which provides ground school and basic flight maneuvers with emergency procedures training. Other annual training includes external load and long line operations, bucket operations in long and short line configurations, one-step insertions of ground crews, and confined area landings. The pilots also continuously train in high altitude mountain flying techniques and familiarization flights in local terrain. "Pilots really need to understand the local area and mountain ranges because the area is well known for extreme winds and local weather conditions," said Knight. "During the summer, popup storms can happen, and during the winter months if we are called on a search or rescue we have to deal with the winter conditions including winds and low ceiling. The eastern Sierra front is gorgeous terrain to fly in but it can catch the inexperienced very quickly if you don't know the area's microclimates."

Requirements to join the team include a valid commercial pilot certificate with helicopter rating, including instrument rating, and 3,500 hours logged as pilot-in-command. Flight experience must include 250 hours of low-level flight, 250 hours conducting external load operations, 500 hours of mountain flying above 5,000 feet at mean sea level, and 100 hours of flight time within the preceding 12 months.

Coordinating the day-to-day operations of the NDF's Air Operations crews are three full-time helicopter managers. They manage the pilot, aircraft mechanic, fuel trucks and driver during duty days. They also coordinate logistics for the aircraft support trailer and fuel truck when they relocate on a fire. The manager flies on the aircraft with the helitack crew.

During the fire season, there are nine seasonal helitack firefighters and crewmembers assigned to NDF Air Operations. On an initial attack flight, six will board an aircraft with the manager, who sits up front with the pilot. The helitack crew is trained in safely working around helicopters, helicopter management, interagency aviation training, and NDF specific training — such as wildland fire behavior, general firefighting procedures and chainsaw operations.

The helitack crew is well equipped when it boards the aircraft. Its members carry hand tools, shovels, chainsaws, brush coats, brush gear, a water bag and a 35-pound personal gear pack with



provisions for a stay overnight, including food and a medical kit. The equipment is heavy and because of the mountainous terrain and hiking required, the helitack crew is required to be in top physical condition. During a fire, the helitack crew is flown into the area and dropped off. It will then deploy the helicopter's 240-gallon Bambi Bucket and PowerFill pump with a 100-foot plasma line or directly attached to the belly, depending on what type of terrain the





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helicopter is operating in. The helicopter stays in contact with the helitack crew and provides water drops in support. The helicopter also redeploys the crews as requested.

The NDF also has two fuel trucks with two seasonal truck drivers, each carrying 1,200 gallons of jet fuel. If they know the helicopter will not be coming back to Minden to refuel, a fuel truck will depart to where the helicopter is operating, be it an airport or offsite landing area. Helicopter maintenance is provided onsite and in-house by Federal Aviation Administration licensed airframe and powerplant/inspection authorization maintenance technicians. These technicians are able to cover the daily maintenance tasks to keep the Huevs flying and will deploy with the aircraft when they work offsite.

A CHANGE OF PACE

During the winter months, the helicopters go into their heavy maintenance cycle, but one aircraft is normally available if it is needed by the state.

"On a limited basis, we work with the Division of Emergency Management for non-fire emergency use such as search-and-rescue or state emergency situations," Knight said. "We get called out a few times a year to look for lost people or if they need an aircraft the size of the Huey. We are not hoist-equipped, so if [we] find someone we will do our best to land near them and get them out of the situation.

"Other than that, we also help the Nevada Department of Wildlife when they need an aircraft with more lift than the Bell 407 they fly. [We] then will use our bucket to fill water troughs/guzzlers around the state that wildlife drink from. Generally we use the winter months to prepare and do upgrades to the aircraft for the next firefighting season. After the new year we concentrate on pilot and crew training and by April or May are ready for what always seems to be an interesting fire season."

The NDF Air Operations program has been doing its job now for four decades. The operation is cost-effective and gives the people of Nevada a strong capability for the investment. It also gives the state the ability to do initial fire attack with the goal of keeping fires to the smallest size possible. With dedicated AOG service (1-800-HELIMART)

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FOUR SEASONS AVIATION

Toronto's Four Seasons Aviation has turned to one of the classics — a Sikorsky S-58T — to expand its presence in the flourishing aerial construction sector in Canada's largest city.

By Oliver Johnson Photos by Mike Reyno & Andy Cline As it prepares to celebrate its 30th anniversary in 2017, Four Seasons Aviation is looking forward to the future with the help of a blast from the past. Over the years, the Toronto, Ontario-based operator has worked hard to establish a reputation as one of the leading providers of aerial cinematography among the major TV and film production studios, but the latest introduction to its fleet – a Sikorsky S-58ET – promises to allow the company to take full advantage of the growing number of construction opportunities in Canada's largest city. Established by owner-pilot Dave Tommasini in 1987 with a single Bell 206B

KORSKY H

JetRanger, Four Seasons began operations as a general utility company, performing local charter work and covering the occasional fire. It then branched out into the aerial

Four Seasons Aviation began operating a Sikorsky S-58ET in Toronto, Ontario, in October 2016. The aircraft, brought to the company through a partnership with local mechanical construction firm Sprint Mechanical, will be used to perform lifts on aerial construction projects in the city..



filming business, along with corporate charter, corporate aircraft management, and at one point even offered flight training (for which it used a Robinson R22 in association with Kitchener, Ontario-based Great Lakes Helicopters). It also became an authorized service center for AgustaWestland (now known as Leonardo Helicopters), importing many aircraft from the manufacturer for Canadian customers.

Today, aerial cinematography makes up the bulk of Four Seasons' workload, for which it primarily uses an Airbus Helicopters AS355F1 TwinStar. It still has a Bell 206B JetRanger (which is generally offered as the most cost-effective solution for customers), but it's the company's newest arrival that represents its hope for growth in the future. The S-58ET, which arrived at Four Seasons' headquarters at Downsview Airport (just north of downtown Toronto) in September, will provide the company with the perfect tool to further expand its growing aerial lift business, offering the capability to lift up to 4,500 pounds (2,040 kilograms). It was brought to the company through a partnership with local mechanical construction firm Sprint Mechanical Inc.; the funding for the purchase was provided by Sprint Mechanical's owner Albert Salvatore. The ties between the two companies were established when lan Bergeron, now Sprint Mechanical's VP of safety and legal affairs (and also a commercial fixed- and rotary-wing pilot) first began exploring the routine use of helicopters on construction projects in 1992. He was working at a different company at the time, and met Tommasini while on a project at Yorkdale Shopping Centre (a major mall in the city), for which Tommasini provided the fuel. Over the following years, the two continued to work together According to Sprint's lan Bergeron, the owners of Toronto's Yorkdale Shopping Centre have calculated that each parking spot at the mall is worth \$15,000 per day of revenue so losing dozens of spots for several days to use a ground crane for construction is deemed an unacceptable loss. The speed of a helicopter is therefore seen as hugely valuable.

"

"It flies so nicely, it's like a fixed-wing in the air — it's that stable. There's little vibration except for translational lift when you're coming in. You could cut a diamond on the dash. It's the smoothest ship I've ever flown."

- Ian Bergeron, VP of safety and legal affairs, Sprint Mechanical Inc.

on aerial construction projects across Toronto. When Bergeron jointed Sprint in 2012, Four Seasons became Sprint's first choice — even over the use of cranes — for lift work.

Bergeron said the most difficult challenge he faced in adopting rotary-wing operations was in initially persuading his company's owners, clients and general contractors to do so. Since then, the benefits of using a helicopter over a ground crane were quickly proven. A job that would take a crane six days to complete — due to needing to spend three days to set it up and three days to take it down — could be completed in a matter of minutes.

"For mechanical contractors, the biggest problem we're faced with is time," he told *Vertical.* "Everybody buys material for about the same price, so if you get delays on labor, that's what makes the difference between a profit on a job and a loss. With a helicopter operation we can control the labor very tightly. We know that to put these 10 units on will take us 25 minutes, for example, so we know what our labor is going to be."

With many of the heating, ventilation and air conditioning (HVAC) units that arrived in the 1970s on downtown offices, residences, stores and malls now reaching the end of their working life, a potential glut of work presented itself.

"We realized that there are millions of the HVAC units that are all getting 30-plus years old," said Bergeron. "About four years ago, we started more actively marketing and pursuing this work. I started looking at every job whether it would make sense to use a helicopter."

However, if the two companies were serious about increasing the amount of aerial lift work they were performing, they realized they would need a larger twin engine aircraft than the AS355F especially as that was kept busy enough with Four Seasons' film work. They would occasionally bring in an S-61 and/or a Bell 212 on an ad hoc basis from across the border or from Western Canada, but having to guarantee jobs to customers without having the certainty that an aircraft wouldn't be held up at the border — or be dispatched to fight fires at the last minute — left them vulnerable.

"We said the only way to do this is to get our own machine and base it here," said Bergeron. The Bell 212, 214, Airbus Helicopters AS332 Super Puma, and Sikorsky S-61 were all considered, but they were thought to not have the lifting performance required, poor parts availability, or were too expensive to purchase or run.

"It came down to what machine is worth its weight in gold, can make money, has got a history of it, and what machine can we repair and look after?" said Bergeron. "David and I kept coming back to the [S-]58ET. It's 13,000 pounds gross weight, around 8,000 pounds empty. The price was right and it was available."

Salvatore said the aircraft's lifting capabilities were the deciding factor. "We spent some considerable time researching it, and with the ability to lift around 4,500 pounds, it can look after most of the lifting needs for Sprint Mechanical," he said. "And once the word is out among our customers, I think it will open up even more doors for us."

FINDING THE 58

To help find the right aircraft, Tommasini enlisted the help of Matt Trahearn, director of maintenance at Heli-Lynx, which performs most of Four Season's heavy maintenance. Trahearn had worked on S-58Ts earlier in his career at Hydro One.

"They were looking for an aircraft that could lift 4,500 pounds, and this kind of fit into the category where they didn't have to get something really expensive, and at the same time, the [PT6T-3] engines are still maintained by Pratt & Whitney, so we still get support from them," he told *Vertical.* "It's a great aircraft — and very quiet for its size. It's got great visibility for the pilot to do sling work, so I thought it would do them well in the construction business."

Trahearn accompanied Bergeron and Tommasini on a visit to Fate, Texas-based California Helicopter Airways, Inc. — the owner of the S-58's type certificate — to see a newly-rebuilt aircraft.



Sprint can provide customers with a highly experienced ground crew as part of a lift — or will offer hands-on training if a customer would like to use their own crew. The training includes a classroom session, a safety talk, and about one hour in the field.





The S-58's engine is mounted in the aircraft's nose. Here, aircraft maintenance engineer Rahmatullah Rahimi takes a look behind the cowlings.



"The aircraft was basically as new an S-58ET as you're going to find anywhere in the world, because it had been totally basically rebuilt," said Trahearn, "and it was rebuilt for the type of operations [Four Seasons] wants to do."

California Helicopter has specialized in the S-58 and S-58T since 1970, purchasing the support program for the aircraft from Sikorsky in 1981 before buying the type certificate about 18 months ago (along with the type certificates for the S-62 and S-55). It provides all the support for the aircraft, manufactures parts and maintains the fleet, as well as gradually rebuilding the odd airframe.

"This was the second S-58T we've built in the last seven years," Brad Ladue, California Helicopter's CEO, told *Vertical*. "It takes us about five years to build one. I told Four Seasons



that they could take a look at it, but it wasn't really for sale. They came down and said it was the best one they'd found and they wanted to buy it."

Ladue has over 26,000 hours in the S-58, and serves as the training pilot for those new to the type. "I've trained quite a lot of pilots in this over the years, and many are still flying them. It doesn't have all the technology you see in newer aircraft, obviously, but it flies really nicely, really smoothly," he said. "It's a great lifting platform if you're doing external loads, and that's what we do with them — firefighting."

Trahearn said the group was particularly impressed with the support offered by Ladue's firm. "Because I hadn't really looked at the

S-58 for a long time, I was worried what parts and supplies and support was like for this aircraft," he said. "But in visiting California Helicopter's facility, we felt very comfortable that they have a good setup of spare components and parts. It kind of gave you the warm and fuzzy feeling that they can provide the level of support we wanted."

FLYING THE AIRCRAFT

Bergeron and Tommasini took the type rating on the S-58T, which took about five flight hours each. "By the end I was really feeling comfortable," said Bergeron. "It flies so nicely, it's like a fixed-wing in the air — it's that stable. There's little vibration except for translational lift when you're coming in. You could cut a diamond on the dash. It's the smoothest ship I've ever flown."

He also praised the aircraft's maneuverability, tail rotor authority, and power. "The good thing about that [power] is confidence for us," he said. "If we're doing long line work, and an engine does start giving us a problem, then you know that you've got enough power to put the load either down safely or where you want to put it, then you can land it."

Tommasini said the number of doors the S-58ET would open was "pretty much unlimited" due to the aircraft's capabilities. "We can do the lift work, we can get into working on forestry, and we've got other customers that we can probably spin off as time goes on," he said. "There are good opportunities to expand the usage quite considerably. It all depends how much we want to go ahead and do it. But we're looking at building up the program slowly."

For now, it will be used primarily on construction jobs and kept in Ontario to ensure availability for Four Season's contractor customers. "We bought the

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The S-58ET flies above the iconic skyline of downtown Toronto, with the CN Tower and Rogers Centre in the background. The aircraft is the only one of its type



machine because it makes economic sense - we don't need to fly it 500 hours a year to make money," said Bergeron. "We did it based on a low number of hours per year, because we want it available for the contractors."

While the relationship between Sprint Mechanical and Four Seasons was only formalized this year with the purchase of the S-58T, the two had already built a highly successful partnership to gain and complete construction contracts across the Greater Toronto Area over the past few years.

"One of the things we started doing is we had very detailed engineering plans for each lift," said Bergeron. "But then we also offer hands-on training for the crew. . . . We engineer the rigging, we design the attachment points, we figure out where the center of gravity is going to be, [and] we fly a certain way. So when we work on a job, [Sprint Mechanical] works on all the design phase, and the planning, and David looks after the aviation side."

The training includes a classroom session, a safety talk, and about an hour in the field - and is included in the price quoted to customers -avalue-added benefit they appreciate, said Bergeron. The team's intimate knowledge of the construction and aviation businesses has also allowed them to offer clients a variety of options for some lifts. "We know what you need to do the job, how we can lift it, and how can make the job efficient," he said.

AN ESTABLISHED PRESENCE

While the S-58T offers Four Seasons an exciting new revenue stream, the bulk of the company's work remains in aerial filming. Recent work has included Good Witch, Designated Survivor, and Robocop, as well as providing aerials across Canada for the National Hockey League, Canadian Football League Grey Cup championship, and Toronto Blue Jays baseball games.

"It's been pretty steady over the years," said Tommasini. "There's the dollar exchange working in our favor right now, but the film infrastructure in Toronto is very good as well - the



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The aircraft was purchased from Fate, Texas-based California Helicopter Airways. The company owns the S-58's type certificate, and as well as providing support for the type, rebuilds the occasional aircraft as time permits.



8

crews, the facilities and the support stuff - and we're just part of that infrastructure."

The TwinStar does most of the film flying, with its twin engines providing an additional layer of safety for the production companies, while it also has the ability to accept a wide variety of mounts and camera systems, including Cineflex, Shotover and Wescam.

"We took a chance when we bought it — we were the only twin engine aircraft in Toronto at the time," said Tommasini. "We decided to take the plunge, and it's been a great aircraft. It's very versatile, we can do all kinds of different work, and it performs very well. It's very reliable, it's safe, and it gives me that extra cushion with the twin engine that really pays off in a lot of circumstances. So it's been a great little machine for us."

Tommasini serves as Four Season's primary pilot, with one backup pilot and Bergeron rounding out the company's flight team. Tommasini also performs maintenance on the aircraft, along with director of maintenance Libor Bocek and maintenance engineer Rahmatullah Rahimi.

"Mostly it's just routine maintenance," said Bocek. "The film work is not highly demanding on the machine. It gets maintained on a day-to-day basis, and it's a reliable aircraft, so we haven't really had any outstanding issues with it."

In terms of bringing the S-58ET into the company's fleet, Bocek was tasked with preparing the documentation for approval by Transport Canada. "It was a fair bit of work, but probably it was no different to any other twin engine helicopter out there," he said. "There was a little bit of a learning curve, but it was a good experience for us."

Bocek said that, while it was still early days with the aircraft, he was happy with what he has seen so far. "When I first opened up and had a look under the cowlings, and had a look around the machine, I was very impressed for something designed and built back in the '50s," he said. "The level of engineering is very impressive."

Four Seasons' specialization to date has, to a large extent, insulated it from the kind of pressures faced by many other utility operators in the current economic climate. And with the S-58ET joining its fleet and diversifying its operations, it is in the enviable position of being able to plan for growth.

"We've kind of carved our own little niche and we're happy to be where we are, doing what we do, and specializing in what we have," said Tommasini. "There's always new challenges, new things to do, and our biggest task is being able to adapt to that, with our customers, with the environment, with the economy, with new technology, and meet the requirements that everybody wants. What we're doing this year, we weren't doing last year, and the year before was a little different as well. I think all the operators are the same. If you want to stay in business, you've got to be able to be flexible."



Oliver Johnson | Editor-in-Chief of *Vertical* Magazine, Oliver has been covering the helicopter industry since joining MHM Publishing in 2012. He can be reached at at oliver@mhmpub.com.

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Flight Evaluation H125 FastFin Kit

TAMING Southered

With its new FastFin kit for the Airbus Helicopters H125, BLR Aerospace has created a margin enhancer that also makes a notoriously squirrelly aircraft a pleasure to hover.

Story by Jon Bourke | Photos by Dan Megna





1. Contraction





eight is the enemy of flight, and flight is achieved in an aircraft only by compromising desired flight performance as demanded by gravity. Whether in the structure, airfoils, drive system or fuel capacity, all aircraft designs are compromises to some degree dictated by weight. Most single-main-rotor helicopters rely solely on an engine's power output to provide both the lifting thrust of the main rotor, and the tail rotor thrust for overcoming main rotor torque and achieving directional control. Although greater performance margins could be achieved by using a larger main rotor and tail rotor, these would require more power and thus a larger engine, which would require a larger fuel supply and a stronger drive train — creating a cycle of increasing weight and diminishing performance returns.

Enter BLR Aerospace, which has a very different approach to improving aircraft performance. Founded in 1991 as Boundary Layer Research, BLR has a long history of developing performance-enhancing aerodynamic modifications for both fixed-wing and rotary-wing aircraft (see p.96, Vertical, Oct-Nov 2014). Rather than increasing power and thereby weight, BLR's modifications redirect existing airflow more efficiently, taking advantage of "free energy" from the airflow of the main rotor downwash to relieve some of the burden on the engine.

In the rotorcraft industry, BLR is best known for its "FastFin" kits for Bell medium helicopters, which deliver improved hot-and-high performance and tail rotor authority using a tailboom strake and modified vertical fin. Although Bell Helicopter was initially wary of the FastFin system, it proved





to be so effective and popular with customers that Bell licensed use of BLR's supplemental type certificate (STC) for the technology and has made it standard on all new Bell 412EP and EPI helicopters. I have first-hand experience with the FastFin system through my position as chief pilot of Helicopter Express in Atlanta, Georgia, as a number of the Bell 205 A-1s in our firefighting fleet are equipped with BLR's modifications. So, I've long been familiar with what the company's engineers can offer for those who work on the back side of the power curve.

In addition to 205 A-1s and other Bell models, the Helicopter Express fleet includes a number of Airbus Helicopters H125 (formerly AS350 B3e) and earlier AS350 B3 aircraft. We use these for firefighting, external load work, and short-haul search-and-rescue operations across the western United States, including the Rockies, the Teton and Wind River Ranges of Wyoming, California's Sierra Crest, and Washington's Mount Rainier and North Cascades — all very rugged areas that can leave a pilot short on control margin very quickly. Our pilots frequently perform difficult rescues at pressure altitudes up to 14,500 feet and density altitudes as high as 18,000 feet, where any performance advantage counts.

Now, BLR has developed a FastFin system for the H125, which will soon be available as a retrofit kit as well as a factory option for new aircraft. When I was offered the opportunity to fly BLR's own modified H125 test bed aircraft, I naturally jumped at the chance to see just what enhancements BLR has developed for the "Squirrel," and how they perform on that airframe from a working perspective.

A DIFFERENT KIND OF 'FASTFIN'

For my test flight in mid-September, I traveled to Gunnison, Colorado, where a leased hangar at the Gunnison–Crested Butte Regional Airport served as BLR's base of operations for the H125 flight test program.

Joining me were BLR president Mike Carpenter and Dan Smith, the company's director of helicopter programs and experimental test pilot. At the time of my visit, the company was wrapping up a two-year development program that had included over 160 hours of flight testing. All of the company's baseline unmodified and modified flight test regimes had been completed and the data collected; BLR was waiting on the Federal Aviation Administration (FAA) to schedule the final validation flight tests for the STC approval.

What I saw on the H125 test bed aircraft in the BLR hangar was not quite what I was expecting. Unlike BLR's FastFin modifications for Bell medium helicopters — in which a significant amount of sheet metal is surgically removed from the aircraft's vertical fin — the mods to the H125 are much kinder on the airframe.

All of the original vertical and horizontal fin sheet metal remains intact, as does the tailboom. The tail rotor drive shaft covers are replaced by what BLR describes as an Advanced Tailboom Aerodynamic Cowling, which modifies the left side of the tailboom into an aerodynamic surface that more closely resembles an ideal wing. Vortex generators on the left side of the boom further enhance the lift produced by that side, while a small strake reduces lift on the right side of the tailboom.

An efficient heat shield has been designed into the replacement for the tail rotor drive shaft cover, providing an improved thermal barrier to protect driveshaft bearings during hovering and low-speed flight. Although the test bed aircraft I flew was equipped with a stainless steel heat shield, BLR is planning to replace this with an aluminum version in the production kits. This will save about eight pounds (3.6 kilograms), for a total installed weight of 21 pounds (9.5 kilograms). The added weight of the kit will more than pay for itself, however, as BLR is expecting to certify a net increase in useful load as high as 130 pounds (59.1 kilograms) in hover out-of-ground-effect (OGE). The company estimates that installation of the kit will take about 100 to 120 man-hours. The test bed aircraft is owned by BLR, which decided to purchase an aircraft outright in order to proceed with the development program more efficiently. According to Carpenter, Airbus Helicopters was very "open-minded and encouraging" when BLR approached them about the project, and has been supportive throughout — as evidenced by the fact that the manufacturer will be offering the kit as a factory option as soon as it is certified.

As Carpenter noted, unlike Bell medium helicopters, the H125 does not have a reputation as a tail-rotor-limited aircraft — although it's

> While the FastFin kit delivers most of its benefits on the back side of the power curve, it does not present any adverse effects in cruise or autorotative flight.

certainly known to be a bit "nervous" in an in-ground-effect (IGE) hover, in keeping with its international model name, Écureuil or Squirrel. So, operators may be skeptical of just how much of a difference these modifications will make. To find out, I went up in the air with Smith for a 1.5-hour test flight.

NO MORE JITTERS

Smith and I tried to get an early start so we could accomplish most of the flight in calm to no-wind conditions, duplicating the FAA's required flight test environment in which the official data was taken. I also wanted to ensure that I could accurately assess what I felt in the controls in order to compare that to what I was used to. We began with a pre-flight inspection of the entire aircraft, cover-

ing all normal items plus the modifications done for the STC. There wasn't anything that particularly increased the time or complexity of the inspection, a testament to the no-nonsense design of the kit. Although I was very used to flying our H125s at the density altitudes we would see that morning (around 8,500 feet), I also wanted to give myself a familiar benchmark by flying it at a mission gross weight I knew well. So, after a detailed pre-flight operational briefing and plan of action review, we loaded the aircraft with carefully weighed shot bags and fueled it to reflect my typical mission load and fuel quantity, for a gross weight of around 4,900 to 5,000 pounds (2,220 to 2,265 kilograms).

The aircraft was still equipped with the telemetry displays and sensor package it had for the data-gathering test flights, so the cockpit was pretty busy, but Smith showed me where the pertinent information was displayed so we could both refer to it during the flight for reference and comparison. Our flight was also recorded with high-quality video and audio so that anything we noted could be reviewed afterwards.

Start-up and run-up completed, systems checked, telemetry and displays on and working, data link to the hangar verified, communications checked then Smith let me take the controls for the flight. I slowly came to a skids-light condition and held that for a bit to let things stabilize and get a feel for control responses and deflections. I was making a conscious effort to look at my pedal position while I picked the aircraft up to a hover of around four to five feet. I was anticipating some pedal displacement difference from an unmodified aircraft, I just wasn't sure how much.

In this IGE hover (four to five feet per Airbus charts) I immediately felt at ease with the handling on all axes; there were no unwelcome surprises. Heading control felt like it was benefiting from a stability augmentation system; some pedal turns in both directions had me noting aloud that the inputs had a smoother, "damped" quality to them, but with no reduction in authority. I hover taxied out to the main runway for a departure to the west and again found myself noting aloud that the typical Squirrel IGE jitters — associated with inconsistent airflow under and around the aircraft — seemed to be much less of a bother, possibly due to the fact that the heading wasn't being disturbed and the typical unconscious pilot pedal dance wasn't happening to jar things around.

All Squirrel pilots know how to hover smoothly: they either hover above five feet to get out of the disturbed air, or take the easy

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way out and do a no-hover departure from lift-off. The latter is a bad habit that has led to some serious accidents when pilots have forgotten to re-energize their tail rotor servo hydraulic power in dual-hydraulic AS350 models (more on that in a bit). Flying the BLR aircraft led me to remark, "It's like we have training wheels!" Many pilots will appreciate this particular aspect of the kit, since it will inspire confidence to smoothly handle pinnacle, dolly and other technical landings with much less stress.

The takeoff roll was done gradually from an IGE hover down the centerline of the runway for a visual heading reference (we had no wind). Anyone who flies the Squirrel knows to expect a fairly pronounced left pedal input to keep in trim while accelerating through 25 to 35 knots indicated airspeed, due to the increased efficiency of the upper asymmetrical vertical fin. Remember I said I was making a conscious effort to look at my pedal position to see any differences? Well, as we accelerated through translational lift and the airspeed increased, I was surprised at the fact that there was much less of a pedal movement to achieve trim.

I shared this observation with Smith and worked it out as we climbed for pattern altitude. It wasn't that my trimmed pedal position was any different than it would have been in an unmodified aircraft, it was the fact that I started out from much less of a right (power) pedal position in the hover. Now I realized just how much closer my pedal position in the hover was to the zero-thrust position compared to an unmodified aircraft. Smith and Carpenter had previously told me that the IGE pedal margin improvements were less significant than the OGE margin improvements "due to the slower, less uniform airflow around the tailboom in IGE." If that was true, and I still noticed the takeoff pedal position difference... I chuckled in anticipation of the maneuvers to come.

CONTROL MARGIN WHERE IT COUNTS

Once established in the pattern, I did a normal approach to the centerline followed by a higher power, slower speed profile typical of an external load approach to a spot in the trees — at a fairly steep angle and below translational lift, since there was no wind. Normally in that condition the right pedal would be displaced a good bit, as the tail rotor would be providing all the anti-torque and heading control. Our weight was within the standard hover OGE chart gross weight that guarantees authority in 17 knots relative wind from all directions, so I wasn't expecting to have a whole lot of right pedal pushed in anyway. However, I was really pleased when the actual amount of right pedal I used for the entire approach to a hover was just a hair past even pedal (with

the zero-thrust position being about a half-inch left pedal forward in a correctly rigged aircraft).

I actually felt so confident in the ability to manage heading using induced flow at that point that I talked Smith in to letting me do a load-compensator-assisted hydraulics-off approach to a square helipad south of the runway. (Although nonstandard, training in this procedure is a necessity for my pilots doing human external cargo rescues in the mountains, and we practice it routinely.) I isolated the tail rotor servo with the collective switch while in cruise flight on downwind and felt that familiar pressure on the left foot as we reduced power to shed airspeed for the approach.

Since the load compensator is optimized for assisting a pilot in overcoming the force required to input right pedal for low-to-no-

airspeed flight with no hydraulic pressure assistance, the BLR kit doesn't change the fact you have to push hard on the left pedal in low-power trimmed forward flight. What became apparent to me, though, is how much extra control margin the modified aircraft had when the airspeed dropped well to the backside of the power curve and then to zero airspeed as power was slowly applied. I was actually able to take my feet off of the pedals after pulling OGE hover power in a slow descent to a 10-foot hover. I never needed the assistance of the load compensator to input any right pedal for the hover. The fuel burn had reduced our gross weight, of course, but we were still at an 8,500-foot-plus density altitude!

I held the 10-foot hover over the helipad for 45 seconds or so to feel what it took for any commanded heading changes. Light pressure on the right pedal with load compensator assistance yielded more than adequate control, and easing that pressure back to an evenpedal position held heading with just a slight turn to the left. Left pedal input yielded a highly controllable torque turn due to the fact that the tailboom was still helping provide some anti-torque force. I then executed a near-vertical climb (still below translational lift) to see how much, if any, additional right pedal input I would need to maintain my heading.

After applying enough power to start a 200 to 300 foot-per-minute climb, I initially had to put some pressure on the right pedal. However, as soon as the climb started and the induced flow across the tailboom increased, I took that pressure out to a near-zero-thrust pedal position and safely, controllably climbed out to pattern altitude, where I restored hydraulic pressure assistance to the tail rotor servo. To operators like myself who perform human external cargo work — which requires pilots to carry their people back to safety in the event of a malfunction — this modification makes hydraulic failures in the dual-hydraulic-equipped Squirrel seem like a non-event, even in the most challenging of conditions.

WRAPPING UP

Our next order of business was to perform autorotations from altitude in both minimum rate of descent and maximum glide configurations to see whether the modifications that provide such a significant amount of anti-torque force in forward flight are detrimental to left pedal authority in unpowered flight. Not surprisingly, they are not, since the kit is designed to work with main rotor downwash and that airflow is reversed in autorotation. I couldn't

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The FastFin kit for the H125 is a great margin-enhancing device that can also be a production enhancer, if an operator elects to take advantage of the additional fuel or payload capacity.



notice any change to the available left pedal authority, even at 80 knots indicated airspeed, where almost all of that pedal authority is used in overcoming the effect of the upper vertical fin.

Smith then demonstrated to me, in experienced test pilot form, the measurable amount of pedal margin available over the baseline unmodified aircraft by flying a straight line down the centerline of the runway in the same fashion as required for FAA testing. The telemetry was displayed on the two monitors in front of the pilot and copilot positions (part of that busy cockpit I mentioned before) and transmitted back to the hangar in real-time. This sequence was first performed in BLR's aircraft in an unmodified condition to establish baseline data, then repeated in the modified condition in near-identical conditions.

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We began our run from an OGE hover of around 40 feet (measured by radar altimeter) in near-zero-wind conditions. Using GPS as a reference for simulated relative wind speed, Smith began to translate 90 degrees sideways down the runway. The display showed me the actual amount of pedal displacement needed to hold heading, as measured by sensors attached to the pedal controls. During the actual test sequences, individual runs representing all the relative wind conditions required for certification were performed. However, I asked Smith to show me only the conditions that most pilots really care about: 90-degree and rear-quartering left and right relative winds. I wasn't privy to the unmodified runs, but Smith demonstrated to me a level of heading control that showed a capability above that of the other H125 aircraft I have flown. According to Smith, BLR

> has proven adequate control margins in relative wind conditions of up to 35 knots in the modified aircraft.

After that demonstration, it was time to head back. I had no doubts about what the BLR team had managed to achieve; it was now up to the FAA to fly the aircraft and hopefully come to the same conclusion.

It was clear to me that the FastFin kit for the H125 is a great margin-enhancing device that can also be a production enhancer, if an operator elects to take advantage of the additional fuel or payload that can be carried in hot-and-high conditions. The modifications provide more control margin in high-altitude conditions, and a better comfort margin for critical work. This is in addition to the improved handling gualities that make the aircraft a lot smoother to land and hover. I also see potential for the kit to reduce long-term wear and tear on components by alleviating thrust loading on the tail rotor spider bearing, pitch links and control rod, and also possibly extend the life of the half-shell bearings.

With a list price of US\$69,950, the BLR kit isn't cheap, and some operators may not be able to justify the additional expense. If you fly for one of them, just hope you don't have a chance to see what you're missing. My impressions of the aircraft were best summarized in an offhand comment I made to Smith and Carpenter after my flight: "It would really suck to get used to this then have to go back to fly an aircraft without it."



Jon Bourke | Jon Bourke has been the chief pilot of Atlanta, Georgia-based Helicopter Express since 1999. He has served as chief pilot (Parts 135/133/137), company instructor, and check airman for three different companies, in addition to

owning his own helicopter company. He has worked as a pilot throughout Europe, the Caribbean, and North, Central, and South America, and has extensive experience flying on USFS, USFWS, NPS, BIA, BLM, and DOD contracts. Give your business the lift it needs.



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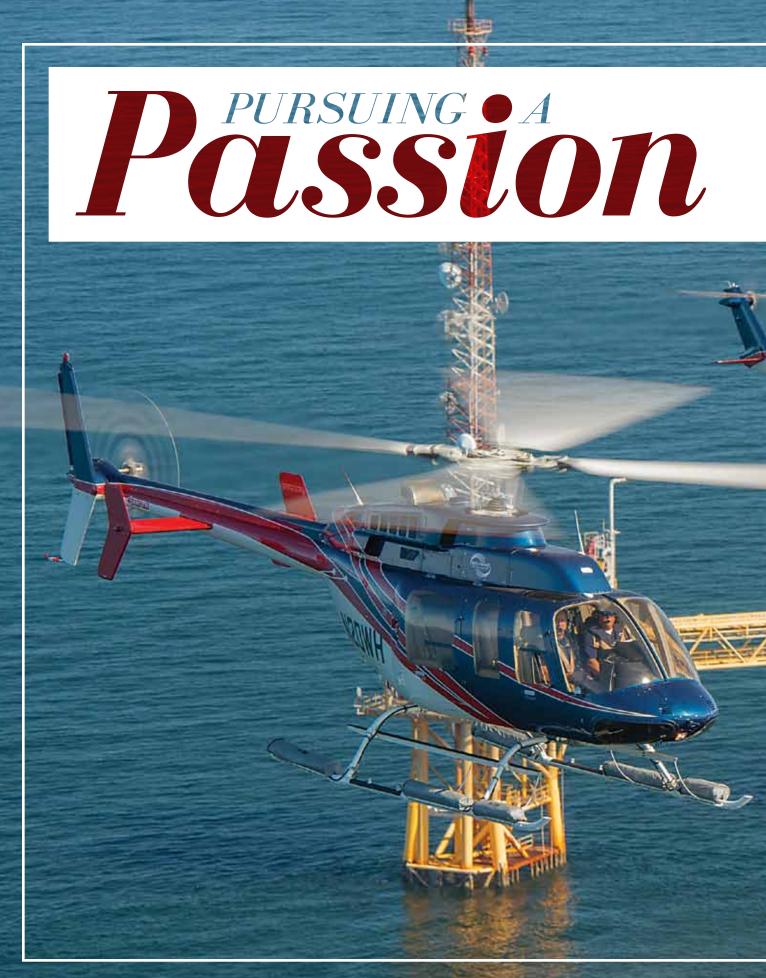


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Bob McCoy took a leap when he left a highly successful career in another field to purchase Westwind Helicopters — but his passion for aviation has helped turn it into a major player in the Gulf of Mexico.

1256 - - white ball Headquartered in south Texas, Westwind Helicopters has emerged as a premier Federal Aviation Administration part 133, 135 and 137 operator serving primarily the oil-and-gas and utility industry throughout the region and offshore in the Gulf of Mexico.

Story & Photos by Dan Megna

t's hard not to admire the confidence and fortitude it takes to pull the plug on a successful, secure and lucrative career to pursue a passion held since childhood. But when that passion is aviation, for many of us, it kinda makes sense. Growing up in south Texas, Bob McCoy had his first taste of aviation while hanging out at the local airport with his grandfather, who worked as a mechanic on ag-spray aircraft. Young McCoy would even get rides in the hoppers of the planes, which fueled his interest to learn to fly. He earned his private fixed-wing pilot's certificate by the age of 17, and, soon afterwards, gained his commercial fixed-wing certificate.

In the early 1980s, McCoy embarked on what would become a long-term career in the oil-and-gas industry. He spent 19 grueling years working offshore on production platforms in the Gulf of Mexico. His work schedule — typically seven or 14 days on/ off — provided him with large blocks of time to spend sharpening his flying skills.

Within a few years, McCoy's fascination turned to helicopters. He discovered an old Bell 47G during his travels that was in need of a great deal of work to restore it to flying condition. In spite of the aircraft's shabby shape, he was inspired at its potential. He dug deep into his savings and even took a \$6,000 bank loan — and the old machine was his.

McCoy devoted a year to personally restoring the Bell 47. This provided him with the experience to attain his airframe and powerplant (A&P) certificate, and eventually his commercial helicopter

pilot's certificate.

With the Bell 47 back to airworthy condition, local ranchers offered McCoy work, often flying seven days a week performing wildlife and cattle management. He later obtained his Federal Aviation Regulations part 137 certificate (allowing him to perform agricultural spray operations), and launched his own part-time agriculture spray venture, which he called McCoy Helicopter Services.

The spray work often required McCoy to spend extended time away from his oil-and-gas job, and for those projects lasting 45 to 60 days, he needed to use his vacation time. "I did that for two years," said McCoy. "Heck, I'd give rides or do anything to turn a dollar with the aircraft."

In 1996, the oil-and-gas company reassigned McCoy to a shorebased office position in Lafayette, Louisiana, where he was responsible for managing production facilities from Texas to Mississippi. But with a demanding schedule, there was little time for McCoy to work in the helicopter business, and he decided to sell the Bell 47. "With all the insurance and the maintenance, I couldn't afford an aircraft without working it," he said.

Five years later, McCoy was again reassigned, this time to a position overseas managing oil-and-gas properties. The new role came with large blocks of time off, giving him the opportunity to get back to his beloved helicopter flying.

He purchased a new helicopter - a Robinson R22 - and went back to work. He started with the same type of work he'd been doing before, and then began offering instruction, too. "I'd







Aircraft maintenance technicians Jeremy Copper and Nathan Fowler are based at the Abbeville base, which handles the majority of the company's maintenance.



Pilot Doug Greenwald escorts his passengers to the aircraft for a morning flight from the Abbeville base. This facility handles the majority of the company's crew shuttles to and from offshore platforms.





go overseas for 28 days and come home for 28 days and I'd work as much as I could flying the helicopter," he said.

A CHANGE OF DIRECTION

By 2007, McCoy found he'd had his fill of living and working overseas, and began looking for opportunities back in Texas. He decided to leave the large oil-and-gas company and strike out on his own, forming a contracting company doing what he knew best — managing small oil-and-gas production facilities.

In the back of his mind, however, McCoy missed flying and often considered the many ways he could put helicopters to work throughout south Texas and the Gulf Coast region. Then he saw a classified advertisement in Trade-A-Plane that would change his life. Rick Fleischer, the owner of Westwind Helicopters, Inc., a small operator based near Sacramento, California, was calling it quits. After more than 20 years of mostly U.S. Forest Service contracting, Fleischer was looking to sell the business and all its assets. The two came to an agreement, and the following year, the deal was finalized. "I got one JetRanger [Bell 206B], a nice truck with a fuel system on it, all the slings and cables, and a Bambi Bucket," said McCoy.

He sold his small contract service and focused all his efforts into building the new company that would merge his love of flying with his many years of experience in the oil-and-gas business. After moving all his assets to Texas, McCoy's next order of business was expanding Westwind's operating specifications to include the Gulf of Mexico.

The new Westwind launched in 2008, with McCoy himself flying the Bell 206B from a base in Rockport, Texas. As other

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Donnie Miller and Seth Blessenberger.

opportunities arose, he began leasing aircraft and establishing new bases; a couple of Bell 206 Ls were based in nearby Galveston, and then a Bell 407 was based at Intracoastal City, Louisiana. That first year, the company flew 821 revenue hours.

Westwind swiftly gained traction with many of the small independent oil-and-gas operators in the region, and one in particular would become a loyal and longstanding business ally. "I was very fortunate," said McCoy. "I had one customer that was really supporting [Westwind], so as they grew their company, our company continued to grow."

In just a few years, Westwind has expanded and matured into one of the region's leading helicopter operators, catering primarily to independent oil-and-gas and utility customers in the Gulf of Mexico and southwest Texas. The combination of McCoy's insider perspective of the oil-and-gas industry and the genuine manner with which he conducts business may be the key to Westwind's success with its many smaller customers.

"Being 100 percent independently owned, I don't have anybody looking over my shoulder to tell me, 'Bob, you need to make six percent profit or 10 percent profit.' "McCoy explained. "If I make one percent [profit], keep happy employees, and have good equipment, nice facilities, that's all that matters. That's just my desire and dream and challenge as an independent and somebody who loves aviation."



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A CUSTOMIZED SERVICE

Westwind's corporate headquarters is housed on a beautiful 50-acre site in Santa Fe, Texas, just north of Galveston. A recently-completed remodel has expanded and/or improved the company's meeting rooms, office suites, maintenance shops, and the customer waiting area. The large hangar can house up to 10 aircraft and an adjacent 3,000-foot grass strip serves the company's fixed-wing assets.

Westwind also operates three satellite bases in Louisiana. The largest, Abbeville, is based at a regional heliport at the Abbeville Chris Crusta Memorial Airport, and is Westwind's main maintenance facility. The company will soon move this operation to a new facility of its own several miles south on a 51-acre property, providing more room for aircraft and passengers, and improved maintenance capabilities. McCoy said the new facility would also maximize cost efficiencies for customers.

The company's other bases in Louisiana — at Cameron and Houma — are relatively small, supporting three to four helicopters and line maintenance capabilities. A base in Venice, Louisiana, no longer supports daily flight operations, but still serves as a fuel stop — and if the need arises, it can be reopened at short notice. Nearly 80 employees call Westwind home, including 36 pilots

and over 20 mechanics who maintain the sizable fleet: 13 Bell 407s, two Bell 206Bs, nine Bell 206/L3/L4s, and one Sikorsky S-76A (a second S-76 will join the fleet in December 2016). In 2015, the fleet turned over about 14,000 hours for revenue flights. Westwind's smaller size and reputation for efficiency and doing things right has not only attracted new customers, but professional and management talent as well. "I have some people now who came from the larger companies," said McCoy. "They come to us and want go to work. They felt like they had become just a number at company X, Y, or Z. Here, they like the small company setting because they feel like they have input to all the decisions."

This sentiment is largely responsible for Bill Majeau's decision to join the company earlier this year. As a more than 30-year veteran of Gulf of Mexico helicopter operations, Majeau has worked with some of the biggest operators and in capacities from line pilot to safety manager. He also holds the position of standards and safety chairman with the Helicopter Safety Advisory Conference.

Westwind recently signed a new contract to provide helicopter services to the U.S. Government at Fort Hood, and it continues to explore other opportunities to further diversify its operations.







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Now, in his role as Westwind's director of safety, he appreciates the relative intimacy of the smaller operator. "The owner is two doors down — I can just yell down the hallway," he told *Vertical*. "And he's not dismissive at all. With his background as an A&P and pilot, he's very knowledgeable, but he's also very approachable and not at all afraid to get down in the weeds with us."

Neil Collins is another example of highly skilled talent leaving a prominent position with a large operator for Westwind. Earlier this year, he left after 12 years with one of the largest operators in the Gulf of Mexico to step in as Westwind's chief pilot. When pressed to describe the contrast between the two companies, Collins said: "I've always prided myself on, 'If I don't know the answer, I'll get the answer — and in a timely manner.' But with a big corporation, sometimes getting that answer didn't happen in a



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timely manner. Here, I appreciate having a direct line to the owner, meaning Bob [McCoy] or the DO, Jim [Roth]. Now, I just pick up the phone and I have the answer immediately."

HELPING CUSTOMERS THROUGH CHALLENGES

Large company or small, everyone doing business in the Gulf of Mexico has been impacted by the recent drop in oil prices. From 2014, oil prices slipped from nearly \$90 a barrel to as low as \$28 a barrel in January of this year. Lately, prices have rebounded a bit, up to near \$50 a barrel.

While Westwind has certainly felt the pinch, it has not been forced to make any drastic changes. "We're blessed because we've got a lot of really good customers, strong customers, and

> they've been able to weather the storm fairly well," said director of business development, Mark Behne. "Like every other operator in the Gulf of Mexico, [we] have had to get creative with costs."

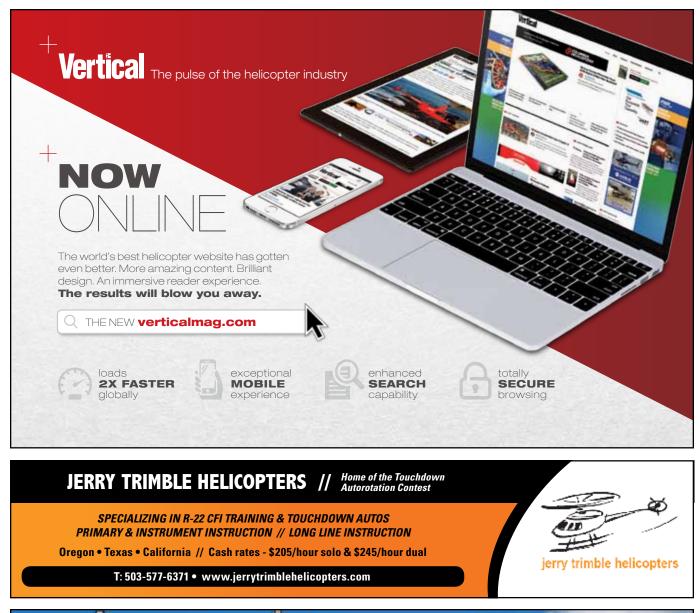
McCoy said some oil companies were "barely making it" when oil prices hit \$40 a barrel, so Westwind adjusted some of its rates to help its customers. "Offshore, you really need to make \$75 to \$80 per barrel to make any kind of profit," he said. "We feel that when oil and gas prices go back up, there's going to be some loyalty."

To make up for some of the loss in revenue from the oil-and-gas sector, Westwind has branched out to the utility industry, winning a contract for visual inspection of 9,000 miles of power lines throughout Texas. It is also exploring other opportunities for pipeline surveys and leak detection.

Regardless of the cyclical trends that will forever influence the industries throughout the Gulf of Mexico, McCoy believes Westwind has built a secure foundation through a few basic elements. "The success of any company is hard work and a vision for success," he said. "Not to mention surrounding yourself with good people who have that same vision of being the best they can be, which I have done and appreciate everyday. Never give up your dreams and don't ever let someone tell you can't do something. Prove them wrong even if it takes that extra effort. [And] stay focused not only on what's going on today, but what lies ahead of you for the future."



Dan Megna | Retired after nearly 30 years with one of Southern California's sheriff's departments, Dan's last 18 years were spent serving in the department's aviation unit, where he logged over 8,000 hours in helicopters as a tactical officer, pilot and flight instructor.













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2016 PHOTO CONTEST

D A WINNING PERSPECTIVE

This is the eighth year we've been running the Vertical Photo Contest, and it's officially the biggest contest we've ever had. In total, we received well over 750 entries from hundreds of photographers around the world, reflecting the truly global nature of our readership. And from the evidence on the following pages — and the hundreds of spectacular photos we simply didn't have room to publish — you're a talented bunch! Many of you work in and around helicopters in your daily lives, providing access to some frankly astonishing perspectives.

Our Grand Prize winner, Joshua Vest, offers a prime example. A member of NAS Whidbey Island's search-and-rescue team, he shared his unique vantage point from the end of a cable underneath a Sikorsky MH-60S Seahawk to spectacular effect. Framed by towering walls of ice that give the image wonderful depth, the aircraft is beautifully lit by the light reflecting off the snow. It perfectly conveys the power of rotary-wing aircraft and their unique life-saving capabilities.

As you'll see in the collection of photos we've selected here, the variety of shots we received from you highlights the tremendous scope of the industry — the size of aircraft, country of operation, sector, and perspective from which they're taken is incredibly varied. We hope you enjoy looking through them as much as we did.

How did the contest work? It was open to anyone over the age of 18 — amateur or professional — and was free to enter. We accepted entries through our website from Aug. 12 to Oct. 14, and each entry was then submitted — without the photographer's details — into a digital folder. We then narrowed down the hundreds of photos to just a dozen or so finalists in each of the three competition categories: Beauty Shots, Helicopters at Work, and Military.

We then handed it over to our sponsors: Bell Helicopter, Airbus Helicopters Canada, Bambi Bucket, Eagle Copters, Gibson & Barnes, Metro Aviation, PHP, Safran Helicopter Engines, and Wysong Enterprises. Their representatives, along with *Vertical* staff, voted for their favorite photo in each category, with the votes being tallied automatically. The photo with the most votes — Joshua Vest's shot of the MH-60S — was awarded the Grand Prize of \$1,000 and appears on the front cover of this issue. The first, second-, and third-placed photographers in each of the three competition categories were awarded prizes of \$500, \$250, and \$100, respectively.

Thanks, as always, to all of you who took the time and effort to share your work with us, and to all our Photo Contest sponsors for their support.

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A Sikorsky MH-60S Seahawk from Naval Air Station Whidbey Island Search and Rescue performs rappel training in Washington state's North Cascade Mountains. The unit's pilots and aircrew are highly trained in both overwater and mountain rescue, including helicopter rappel, hoist, and mountain landing.



Joshua Vest, 35, is a member of NAS Whidbey Island's search-and-rescue team, and enjoys taking photos of the surrounding Washington State area. He takes most of his photos from the air.

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BESCUE

BEAUTY // 1st PLACE

Chamonix Mont-Blanc Hélicoptéres' Airbus AS350 B3e flies over the Argentière Glacier in the French Alps.



Julien Sollberger is a freelance action sports photographer based in Geneva, Switzerland, between the French and Swiss Alps. For the past three years, he has spent a lot of time photographing skydivers and helicopters with Chamonix Mont-Blanc Hélicopteres and Mont-Blanc Skydive. He says that flying and shooting in the Mont-Blanc massif allows him to live a dream.

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BEAUTY // 2nd PLACE

Toll Helicopters' Leonardo AW139 flies northbound along Sydney's eastern coastline during a golden summer sunset.



Paul Sadler, 41, lives in Australia's capital – Canberra. Awarded as the country's aviation photographer of the year in 2014 by the National Aviation Press Club, Paul has been capturing images of helicopters for more than 26 years and currently works as a freelance photographer and writer.

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BEAUTY // 3rd PLACE

Some of PJ Helicopters' fleet, including MD 500s, an MD 520N, and a Bell 206B, rest under the stars just after sunset in Northern California.



Fifteen years of lighting concert stages and skiing in the winter months is a tough life to give up. An opportunity to wrench on helicopters was the only thing convincing enough for **Evan Welsch**. He says he is green to the industry via an A&P ticket and even greaters in green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry via an A&P ticket and even the says he is green to the industry the says greener via camera, but working in the utility helicopter world has given him some unique points of view — and ample opportunity b shoot photos. "I absolutely love the mechanical challenges helicopters can create and I am looking forward to spending the next 15 years putting in my time," he says.





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MILITARY // 1st PLACE

ALC: N

A Westland AH-64 Apache and Leonardo AW159 Wildcat from the British Army's Army Air Corps take part in RNAS Yeovilton's International Air Day in 2016.

Paul Harvey, 49, is from Belfast, Northern Ireland, and has been photographing aircraft for about 38 years. He usually works in and around Ireland and the U.K., and is currently part of the Apron Media team.



MILITARY // 2nd PLACE



Johannes Heyn is an aircraft mechanic from Eilenburg, Germany, who turned his hobby of photography and postproduction into a career. His connection to aviation and specifically helicopters was established during the time he served with the Air Transport Group of Helicopter Wing 64 at Holzdorf Air Base.

A German Air Force Sikorsky CH-53GA "German Advanced" from Helicopter Wing 64 – Air Transport Group flies under the Northern Lights during exercise Cold Blade 2016 in Ivalo, Finland.



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MILITARY // 3rd PLACE

A Leonardo CH-149 from 442 Transport and Rescue Squadron rescues a climber from Mount Rexford near Chilliwack, B.C.

Utah Eheler (also known as Utah Jack) lives on the west coast of British Columbia, Canada. He is an avid outdoorsman and a five-year standing member of Chilliwack Search and Rescue. He has a passion for photography and enjoys capturing aviation-related rescues.



Tom Andreas Østrem hitches a ride with another pilot. Here, the aircraft turns for final approach before landing in Ringedalen, Norway.



Tom Andreas Østrem, 33, is a helicopter pilot in scenic Norway, where he lives his childhood dream and shares it with the rest of the world through social media. As well as being a pilot, he works on another passion — flight safety. "The most important thing after all is getting safely home to my beautiful little family every time," he says.





AT WORK // 2nd PLACE

An Airbus EC130 from MedFlight of Ohio lands at Nationwide Children's Hospital in Columbus with an injured child.



Larry Hamill has had the privilege of photographing MedFlight helicopters for over 20 years. His has taken shots of the operator across Ohio, in all seasons and weather conditions.

AT WORK // 3rd PLACE

Austrian rescue helicopter Christophorus 8 — An Airbus EC135 T2+ — comes in for a landing during a rescue.



Robert Niederwolfsgruber, 38, lives in a small village in the westernmost part of Austria. In the winter, he works in a ski resort, and in the summer he is a scaffolder. He has been taking photos for nine years, during which time it has become his passion — though he describes himself as "only a hobby photographer." Helicopters and landscapes are his favorite subjects, and he currently shoots with a Nikon D810 with several lenses from 24mm to 300mm. His biggest dream is to perform an air-to-air shoot.





READERS' CHOICE

Sunset over the flight line at Kearny Heliport in New Jersey. An Airbus AS355 TwinStar and AS350 AStar are reflected in the water.



Originally from California, Chris Blanton works in the New York area as a helicopter pilot for NYONair, specializing in aerial photography and cinematography. He enjoys amateur photography and shoots with his iPhone whenever something catches his eye

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HONORABLE MENTIONS

Air-Glaciers' Aérospatiale SA315B Lama sprays a vineyard in Switzerland. **Richard Chapuis Photo**







A PJ Helicopters Bell UH-1H sits at the Pacific Helibase in Placerville, California, with the glow of the Trailhead Fire in the distance. **Garin Kilnker Photo**



A Dutch Boeing AH-64 Apache hovers in front of exploding pyrotechnics at the Sanicole Sunset Airshow in 2015. **Pascal van Uffelen Photo**









A mountain climber poses next to the summit cross on Gerlach, the highest point in the Tatra Mountains, Slovakia, as a Government Flying Service Mil Mi-17 approaches. **Tomas Kika Photo**





Canada

An MD500 operated by the DPR Korea Air Force performs during its first ever public air show appearance in Wonsan. Andrzej Rogucki Photo







BELOW: An Airbus H130 drops its passengers in Red River on Réunion Island in the Indian Ocean. Sebastien Diernaz Photo

BOTTOM: A Great Slave Helicopters Airbus AS350 AStar waits for passengers near Qikiqtarjuaq on Baffin Island, Nunavut. **Phil Carpenter Photo**











ABOVE: The second prototype of Marenco Swisshelicopter's SKYe SH09 takes part in flight testing flanked by mountains and a lunar backdrop. **Rino Zigerlig Photo**

LEFT: A U.S. Air Force Boeing V-22 Osprey entertains the crowds at the Royal International Air Tattoo in July 2015. Ray U Photo







An Airbus EC135 — known as Libelle Vorarlberg — from the Austrian police air support unit patrols the skies. **Robert Niederwolfsgruber Photo**







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A Tasman Helicopters Bell 212 lifts off after dropping off a fire crew in Red Lake, Ontario. Bryan Hamilton Photo



A Bulgarian Navy Airbus AS565 Panther takes part in a rescue training mission over the Black Sea. Ognyan Stefanov Photo





RIGHT: An RCAF CH-147F Chinook from 450 Tactical Helicopter Squadron at Canadian Forces Base Petawawa, Ontario, escorted by a CH146 Griffon from 430 Tactical Helicopter Squadron at Canadian Forces Base Valcartier, Quebec. **François Charest Photo**

BELOW: An Inaer Airbus EC145, equipped for emergency medical services, in action near Monte Cimone, Italy. Domenico Marchi Photo











TOP: A test flight for Aerodesign Bike Racks, with Blackcomb Helicopter's Airbus AS350 B3 in Pemberton, British Columbia. Matthew Melsness Photo

ABOVE: Letting off flares as part of a celestial performance at the Sanicole Sunset Airshow. **Pascal van Uffelen Photo**



An emergency medical services pilot from Wiltshire's Air Ambulance checks a landing zone during a night currency sortie. Lloyd Horgan Photo



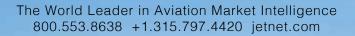
A Leonardo AW139, operated by Sky Shuttle Helicopters, takes in the evening landscape in Hong Kong. Chi Yin Liao Photo

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- Industry recognized training in QA/Auditing or past experience in Aviation Quality Assurance

PRODUCTION MANAGER:Permanent full time position

- Reporting to the Director of Maintenance
 Responsible for the supervision of maintenance activities as directed by the Director of Maintenance

Applicants must meet the following:

- Be willing to relocate to Slave Lake, AB
- Hold a valid AME licence (violation free)
- Have at least six (6) months supervisory experience
 Have knowledge and experience on BH 05, 06, 212, and
- AStar 350 series
- Meet the requirements of Appendix D of Remote Helicopters MPM Procedures Manual

To apply, contact Keith Mercer, Director of Maintenace, keith.mercer@remotehelicopters.com

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All applicants must possess excellent customer service skills along with organizational and communication skills and the ability to work independently and within a team environment.

Please apply in confidence, by email only, to: Elton Ceh, Chief Pilot, <u>eceh@deltahelicopters.com</u> for Pilot positions. Scott Coutts, <u>scoutts@deltahelicopters.com</u> for Engineers and Apprentices positions.

Only applicants chosen for interviews will be contacted.



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Time is RUNNING OUT!



The **Heli-Expo issue** will be here before you know it!



Contact Carla McKay: carla@mhmpub.com

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PRODUCTS

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Grand Designs for the Grand Canyon

When the chief pilot informed me that our mutual employer had landed a six-month contract based in and around the Grand Canyon, I could hardly wait for the other shoe to drop. Yes, I was indeed going to be the lucky Lama pilot contracted to a reputable construction outfit based out of Denver, and ultimately, the National Park Service (NPS).

This was fabulous news, for I had been doing some very demanding work elsewhere for more than two years. The accompanying snow, ice, and frequent relocations were wearing me and my wife rather thin. The prospect of having new customers and a warmer climate sounded like manna from heaven.

Naturally, I wanted to set off on the right foot, so I paid special attention to the particulars of my helicopter, my dedicated A&P mechanic, and our trusty support vehicle. My designated helicopter was unfortunately the ugly duckling of the fleet,

Now I'm going to watch YOU autorotate out of here!



but I was delighted to discover she flew more like a swan.

My middle-aged mechanic was missing a few teeth, but I valued his experience. He knew his Lamas, bottom line. The fuel truck had a wheel on each corner, a large red toolbox, and a load of Jet-A. Our chances of making Arizona by sundown on Friday were looking better by the minute.

Next, we planned the cross-country flight from our Utah base to an improvised construction helispot on the canyon's North Rim. One fuel stop enroute would get me there with a little reserve, and "Toothless" would drive the fuel truck and meet me at the job site. Only it didn't quite work out that way.

I don't know about you, but I get a little nervous being assigned a "new" aircraft, especially one with thousands of hours on the airframe. My distrust of unfamiliar flying machinery prevailed, no matter who my employer was. I was especially leery of "new" fuel gauges.

All this needless wringing of hands leads to my unscheduled landing 10 miles short of the North Rim, Friday afternoon. The Lama's intimidating low fuel light convinced me to squeeze the ship into a tiny turnout beside Highway 67, where I prayed for Toothless to drive by.

This he did, a couple of hours into my cockpit's dusty novel. My mechanic was obviously happy to be back on the road, and soon sent me southbound, brimming with go-juice.

My directions to the construction landing zone were spot-on. After landing in a grotto of tall Ponderosa pine, a small assemblage of NPS personnel were on hand to welcome and accompany me to a nearby isolated RV campground, punctuated with prancing, white-tailed Kaibab squirrels and giant, fragrant pine trees.

Our personal trailers arrived shortly thereafter, and Toothless and I were happily reunited with our domestic partners. We began the process of hooking up our trailers within the shady retreat. The Lama was not required until Monday, leaving us ample time to unpack and go gawk into the abyss.

We were also warmly invited to attend a "mint julep" party at the park's permanent housing area the following evening, hosted by the chief Park Service engineer. I was familiar with the featured beverage, but being a beer-drinking individual, I had never sampled the mint julep, per se. My wife didn't drink alcohol, but she had ladies to chat with while I shook hands all around and tried out a couple of those delicious juleps.

One would have been plenty, it turned out. The chief engineer was the bartender, so "the pilot" was treated to overflowing shots of bourbon while he laid out the more exciting aspects of our upcoming project in the mile-deep canyon, where my flying skills would be tested.

The party overflowed outside to a gentle slope of green grass, chairs aplenty. I was feeling mildly euphoric at our 8,100-foot elevation. My pretty mate was watching, giving me the eye — convincing me to lay off those powerful juleps — and go find a beer, maybe?

When I asked for a beer, the grinning bartender handed me a clean glass and pointed in the direction of the keg. The clever engineers had strategically positioned the beer-on-tap at the top of the incline.

The tipsy pilot was the first to crack the spigot, unleashing the chilled, frothy, golden liquid. And the tipsy pilot was the first to roll to the bottom of the incline, accompanied by loud hoots of laughter and scattered applause. And yes, I spilt that beer — I never tasted a drop.

It was about then that my gorgeous wife rose from her chair — dressed in a lovely black evening dress, and several months pregnant. Saying "goodnight" for both of us, she informed the hostess that we would be returning to the Airstream.

Good thing I didn't make a practice of getting plastered in front of customers, but it *was* very clever of the pilot to have his partner along to minimize the damage.



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