



2016

 ROTORCRAFT PRO 

BEST OF INDUSTRY



We at *Rotorcraft Pro* reflect on some of our industry's best as 2016 comes to an end. This special feature focuses on four areas: innovative products, safety efforts, people (living and deceased) who left a legacy, and operators who made an exceptional difference through their work.



BEST OF INDUSTRY @ INNOVATION: Our 2016 innovators contest and social media vote-off spotlights some of the most innovative products in our industry. The winner of this contest receives \$5,000 in free *Rotorcraft Pro* advertising. The second- and third-place finishers are presented prestigious glass awards.

BEST OF INDUSTRY @ SAFETY: Here we recognize the efforts the U.S. Helicopter Safety Team undertook to reduce accidents and increase safety.

BEST OF INDUSTRY @ LEGACY: We pay tribute to two exceptional people who left a lasting legacy with helicopters.

BEST OF INDUSTRY @ WORK: We applaud operators who, through readiness and fortitude, performed extraordinarily beneficial work during natural disasters.

BEST OF INDUSTRY @ INNOVATORS

Capewell Aerial Systems' AirTEP

Every year, thousands of lives are lost worldwide due to floods and other natural and man-made disasters. Many of these deaths could have been prevented if the innovative airborne tactical extraction platform (AirTEP) had been available to rescue crews.

AirTEP is unique in that it is designed and tested to accommodate up to 10 people safely. Other rescue devices, such as airborne litters and rescue baskets, accommodate only a single victim. AirTEP's multi-person capacity offers a huge advantage during disasters where numerous people are affected or mass evacuations are required. Floods, forest fires, tropical storms, toxic chemical spills, boating accidents, and high-rise fires are some of the situations where AirTEP can help save multiple lives. Often there is no time to lose. The ability to pluck 10 people at a time from harm's way is a game changer for search and rescue (SAR) teams that previously had to shuttle one victim at a time to safety.

AirTEP offers another huge advantage to SAR: It permits insertion of teams up to 10 people into areas rendered inaccessible due to fires, bridge/road washouts, earthquakes, and floods. Having "boots on the ground" in these situations can restore order and save lives.

capewellaerialsystems.com/product/search-rescue



2

Rugged Video Commander

In the past year, Rugged Video has completely integrated its onboard video capture and editing solutions to a single automated unit called the Commander. It also has a whole new digital upload platform that not only offers digital delivery for onboard video, but photos as well.

Rugged Video has added complete GPS automation to the capture process. It can play soundtracks and narrations (in multiple languages), switch cameras, control recording, add titles and credits, and take snapshots, all without a single input from a pilot or operator. The moment they land, customers have a professionally edited 1080p video. With the new Commander DVR, Rugged Video also adds intro videos (called pre-roll) automatically. Once on the ground, the operator plays the video for customers on HD monitors. Expect about an 80 percent sell-through rate.

Next is where the magic happens. Customers don't take a USB or wait for a Blu-Ray/DVD, rather they get a four-digit access code. All videos are automatically uploaded for their specific tour. Customers access their videos by going to getourvideo.com and typing in their access code.

All of the videos are available online in a format that is easy to view and share on any device. All uploaded videos are tagged with operator keywords like "Best Attraction in Vegas" or "Cool Things to see in Hawaii," and all feature backlinks to the operator's webpage. Soon operators have thousands of videos online that customers are actively sharing. This floods the front pages of Google and results in more traffic and direct referrals.

ruggedvid.com/products/commander-recorder



3

Aero Design Quick Release Bicycle Racks

Aero Design announced a new addition to the Aero Design Extreme Line: Quick Release Bicycle Racks for the Airbus AS350/355. These racks utilize the existing Aero Design quick release mounts that exist for their line of cargo baskets. The system allows an operator to swap from basket to bike rack in less time than it takes to perform a weight and balance amendment. It also allows for three bikes per side, or combinations of bike rack plus any of the four models of Aero Design Cargo Basket, or two models of Aero Design Quick Release Steps for the Airbus AS350/355.

The rack will accept the shortest frame bike (26-inch wheel) up to the current longest frame mountain bike (29-inch wheel) and all can be up to four inches wide with no modification to the rack. Additionally, it takes less than a minute each to install or remove the bikes on and off the rack. Such speed and adaptability helps ensure that heli-biking will be the next step forward in the growing mountain biking phenomenon.

www.aerodesign.ca



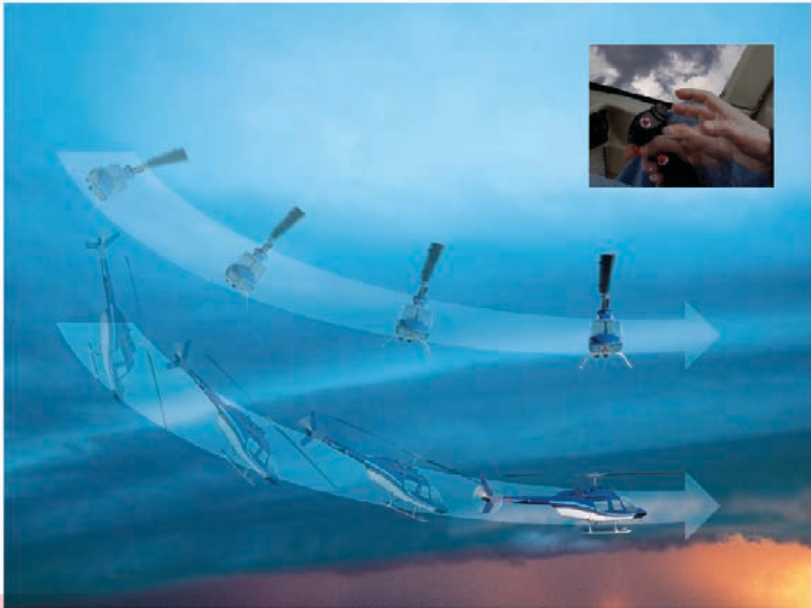
4

Genesys Aerosystems HeliSAS

HAA (Helicopter Air Ambulance) operators cannot wait for good weather to fly, so it is imperative that they are extremely proactive with regards to improving safety features. That's the primary reason the Genesys Aerosystems' helicopter autopilot and stability augmentation system (HeliSAS) is becoming a must have for HAA ops. HeliSAS sets a new standard for helicopter safety and productivity. This lightweight, cost-effective safety enhancement dramatically reduces pilot workload while providing precise control during all modes of flight, regardless of wind conditions or shifts in weight.

In HAA, these features are even more critical. What Genesys Aerosystems does for a living is enhance aircraft safety and mission performance with innovative, leading avionics solutions, and HeliSAS is at the top of its safety lineup. It is proven to save lives. That's why the addition of Genesys Aerosystems' HeliSAS on HAA helicopters makes perfect safety sense.

genesys-aerosystems.com/product-category/helisas-autopilot-and-stability-augmentation-system



In the event that a pilot loses visual reference due to limited visibility, releasing the cyclic causes the helicopter to automatically recover to a near-level attitude.

5

HELILADDER™

HeliLadder is an innovative hybrid ladder/stand that permits helicopter technicians to focus on their work—instead of their balance. The patent-pending, cantilevered structure wraps around the fuselage, providing unequaled access to the upper airframe, rotorhead, and M/R blades. HeliLadder offers the portability of a ladder, complemented with the wide rungs, safety handrails, and rock-solid stability of a work stand. Placement options are unlimited because the brace-free support legs straddle crosstubes and clear passenger steps. Reduced vertical rung spacing allows for easier climbing.

Side-rail tool trays and removable rung trays provide tool and FOD control. Neon-yellow handrails visually contrast against the safety-orange, powder-coated ladder, and these handrails are at the technician's fingertips even while on the top step. A patent pending safety lock prevents inadvertent closure of the support legs. The HeliLadder is fully ANSI compliant in its design, with a rated load capacity of 375 pounds. Unlike conventional ladders, it is also OSHA compliant in its usage with aircraft because overreaching is not required. HeliLadder reduces the risk of injury and OSHA violations while increasing maintenance efficiency.

www.heliladder.com



6

Start Pac

Start Pac's innovative design allows quick battery replacements worldwide. Typically, customers must either try to source a local technician to replace battery banks in the field or return their ground power units to the manufacturer for battery replacement. This can take from weeks to months for typical manufacturers, not counting the burden of exorbitant shipping charges, which can add hundreds to thousands of dollars to the replacement cost.

Start Pac's extensive "Quick Change" product line is made in America and eliminates the need to return models to its facility. Battery replacements can immediately be dispatched anywhere in the world, and Start Pac's patented design allows customers to replace batteries in the field in a matter of seconds without any tools or downtime. The revolutionary design measurably increases operational efficiency by eliminating products from remaining inoperable, saving customers thousands of dollars per unit whenever batteries need replacing. That's one reason why there are medevac and rescue operators who have hundreds of Start Pacs in the field. They know that Start Pac generates costs savings and increased efficiency for their operations.

www.startpac.com



Global Helicopter *MMRO* Specialists

COMPONENTS | AVIONICS | STRUCTURES | STC DEVELOPMENT | MANUFACTURING

VIH
AEROSPACE
MMRO

Contact the VIH TEAM today!
vihasales@vih.com | 250-655-6821

www.vihaerospace.com

7

Evolution Helmets

Evolution Helmets based in Melbourne, Florida, manufactures high-end, lightweight helicopter and airplane helmets for all applications, including EMS, law enforcement, aerial application, and utility. The EVO 052 is the lightest NVG-compatible helmet in the world, while the EVO 252 is fast becoming the most popular. Helmets are built to order and also come, based on preference, with either the Bose A20 or Lightspeed Aviation ANR systems.

There are over 20 colors to select from and numerous options that include dual impedance, oxygen receivers, NVG-compatible visor, and built-in battery pack holder. The EVO line of helmets also come with innovative features such as a 400-pound pull-strength magnetic chin strap, gradient lenses, quick-disconnect cords, and the ability to change from a fixed-wing to rotary-wing configuration with just a quick change of the cable system.

Evolution Helmets, made in the USA, come with the best warranty in the helmet market.

www.evolutionhelmets.com



8

MD302 SAM®

Mid-Continent Instruments and Avionics' MD302 Standby Attitude Module (SAM) is the first digital standby display to provide attitude, altitude, airspeed, slip, vertical trend, and interfaced heading information in an advanced 2-inch format. The high-definition, two-screen display complements the flight deck and provides a seamless transition from the primary flight displays to the standby display during an emergency situation.

SAM is extremely light, weighing just 1.6 pounds. The compact, self-contained device offers a unique two-screen display featuring selectable horizontal and vertical orientation. This allows for flexible cockpit installation without extensively rearranging existing equipment.

SAM is designed to fit in less panel space than a standard set of 2- or 3-inch mechanical instruments, and contains a built-in battery that provides over one hour of emergency power in case of aircraft electrical failure.

www.flySAM.com



Selectable Orientation



9

Tiger Tugs Typhoon

Tiger Tugs, a leader in helicopter tug technology, is introducing its most innovative and ground breaking design yet. The Typhoon is the first helicopter tug of its kind, and it is revolutionizing the way helicopters are handled on the ground. This tug is unique because it is a true omnidirectional vehicle capable of driving in any direction. It not only can drive forwards and backwards, but also sideways and in any compass direction. It also can rotate 360 degrees about its center.

With its full wireless remote control capability, operators gain a new level of visibility, safety, and freedom not offered by any other tug. The Typhoon's all-electric drive and state-of-the-art motive system provides total positive control, redundant safety features, and an unbelievably smooth ride.

With the Typhoon, operators can stack more helicopters in a given hangar than previously possible. It has opened new possibilities for operating helicopters off super yachts, and could make easy work of moving helicopters in tight spaces on offshore platforms.

www.tigertugs.com



True Blue Power TB17 Advanced Lithium-ion Battery

The True Blue Power TB17 Advanced Lithium-ion Battery represents a new generation of reliable aviation batteries utilizing lithium-ion technology. The TB17 is the first lithium-ion battery for starting engines to receive FAA technical standard order (TSO) and EASA European technical standard order (ETSO) certification. Additionally, the TB17 received the first FAA supplemental type certificate (STC) for use on the Robinson R44 helicopter as a primary electrical power source, including for engine start.

The TB17 features proprietary Nanophosphate® lithium-ion cell chemistry, which provides unmatched power, energy, safety, and battery life. Weighing just 16 pounds, the TB17 offers a 45 percent weight savings compared to older lead-acid and nickel-cadmium alternatives.

The TB17 offers several layers of protection that include its chemistry, cell design, pack and battery system packaging, and the integration of sophisticated electronic protection systems into the battery. It is ideal for pilots, as it is designed to monitor and communicate temperature, voltage levels, state of charge, and battery health.

Upgrading to the TB17 allows operators to increase their payload, reduce maintenance costs, obtain faster engine starts, and more than double previous battery life.

www.truebluepowerusa.com





kgs

electronics

Power Conversion Products

AC and DC Airborne Power Conversion

50 Years Design/Manufacturing Experience

FAA TSO, MIL and RTCA DO-160 Qualification




Arcadia, CA USA
Tel: 626.574.1175
www.kgselectronics.com

BEST OF INDUSTRY @ SAFETY

NO RESTING ON SUCCESS FOR U.S. HELICOPTER SAFETY TEAM

By Steve Sparks

Since 2013, the U.S. Helicopter Safety Team (www.usbst.org) has enjoyed success in seeing helicopter accidents decrease significantly in nearly every segment of the helicopter industry. Through its efforts and by increasing safety awareness, total helicopter accidents have actually decreased by 52 percent over the last 10 years. Additionally, over that period fatal accidents are down 41 percent, while the fatal accident rate is down 60 percent.

As a regional partner to the International Helicopter Safety Team (IHST), the USHST has focused most of its attention in the past on increasing safety awareness in areas such as safety management, low-level aviation, pilot training, human factors, and weather reporting. This is great progress, but the USHST is not resting until it sees even greater improvement. By utilizing a data-driven approach, the USHST conducts safety analysis of helicopter accidents to help prevent similar accidents from happening in the future.



20 by 2020

The USHST's goal is to reduce fatal helicopter accidents 20 percent by 2020. Recently, the USHST completed a comprehensive analysis of U.S. fatal accidents occurring from 2009 to 2013. This data will be used to develop specific intervention recommendations to support further accident reduction goals in all segments of the helicopter industry. Out of 104 fatal accidents that took place during this 5-year span, 50 percent of them stemmed from three major "occurrence" categories: loss of control, unintended flight into instrument meteorological conditions (IMC), and low-altitude operations. Beginning soon, ad hoc teams from the USHST will develop safety recommendations aimed at mitigating fatal accidents caused by these three categories.

A recommendations list and action plan will be completed by early 2017. The USHST also plans to increase its outreach efforts to help support key areas experiencing the largest number of fatal helicopter accidents: personal/private rotorcraft, helicopter air ambulance (HAA), commercial helicopter operations, and aerial application. Special outreach groups will identify points of contact within these industry segments, involve key populations in seminars and industry meetings, and attend conventions and gatherings relevant to these identified sectors.

As part of its ongoing effort to support a reduction in fatal accidents, the USHST will focus on the following actions:

- Complete a thorough analysis of fatal accidents from 2009 to 2013 for the development of specific intervention recommendations.
- Enhance its outreach to all helicopter industry areas, with special emphasis on personal/private flying, aerial agricultural application, and emergency medical services.
- Concentrate efforts in the safety areas of personal protection, aircraft equipage, pilot judgment, aeronautical decision-making, fostering a just culture, and instrument proficiency.

In moving forward, the USHST plans to align itself with the proven methodologies used by the Commercial Aviation Safety Team (CAST) and General Aviation Joint Steering Committee (GAJSC). While focusing on fatal accidents, the USHST also shares a common vision that zero accidents is the primary objective in all of its efforts.



Join the Fight

For information on how you can join the USHST for the purpose of saving lives by reducing fatal helicopter accidents, please contact Steve Sparks via email at: steven.sparks@faa.gov. We encourage you to join our team—the stakes are much too high to sit idle.

Steve Sparks is a helicopter pilot and serves as coordinator for the USHST.

HELIROLLDRUM

**DOUBLE REVENUE FLIGHTS & NO EMPTY RUNS !
DEFUEL & LIFT MAX. – THEN REFUEL FOR HOME RUN.**

**FERRY TANKS
AIR CARGO TANKS**

www.turtlepac.com
Email: turtlepac@yahoo.com.au

Australian Made

BEST OF INDUSTRY @ LEGACY

LIEUTENANT COLONEL CHARLES S. KETTLES

Helicopter Pilot, Lt. Col. Charles “Chuck” Kettles (Retired) was awarded the Medal of Honor in a White House ceremony this past July for his valor in the Vietnam War.





During the early morning hours of 15 May 1967, members of the 1st Brigade, 101st Airborne Division were being ambushed at the Son Tra Cau riverbed. A North Vietnamese army battalion-sized force with numerous automatic weapons, machine guns, mortars, and recoilless rifles was inflicting casualties on the brigade in intense fighting.

Then-Maj. Kettles was serving on his first of two Vietnam tours of duty as a flight commander with the 176th Assault Helicopter Company, 14th Combat Aviation Battalion. Upon learning of the 1st Brigade's casualties, he volunteered to lead a flight of six UH-1D helicopters to carry reinforcements to the embattled force and to evacuate wounded personnel. As the flight approached the landing zone, it came under heavy and deadly enemy attack from multiple directions. Soldiers were hit and killed before they could leave the arriving lift helicopters, and enemy fire continued to rake the landing zone, inflicting heavy damage to the rotorcraft. However, Kettles refused to depart until all reinforcements and supplies were off-loaded and wounded personnel were loaded on the helicopters to capacity. He then led them out of the battle area and back to the staging area to pick up additional reinforcements.

Kettles then returned to the battlefield, despite knowing the intense enemy fire awaiting his arrival. Bringing reinforcements, he landed in the midst of enemy mortar and automatic weapons fire that seriously wounded his gunner and severely damaged his aircraft.

He departed with fuel streaming out of his aircraft, but nursed his damaged aircraft back to base.

Later that day, the infantry battalion commander requested immediate emergency extraction of the remaining 44 troops, that included four members of Kettles' unit who were stranded when their helicopter was destroyed by enemy fire. With only one UH-1 helicopter remaining that could fly, Kettles volunteered to return to the deadly landing zone for a third time, leading a flight of six evacuation helicopters, five of which were from the 161st Aviation Company.

During the extraction, Kettles was informed by the last helicopter that all personnel were onboard, and departed the landing zone accordingly. Army gunships supporting the evacuation also departed the area. However, once airborne, Kettles was advised that eight troops had been unable to reach the evacuation helicopters due to the intense enemy fire. With complete disregard for his own safety, he returned to the landing zone to rescue the remaining troops.



The North Vietnamese concentrated all their firepower on his lone aircraft, which was immediately impacted by a mortar round that damaged the tail boom and a main rotor blade, while shattering both front windshields, and the chin bubble. Then his aircraft was further raked by small arms and machine gun fire. Despite everything, Kettles maintained control of the aircraft and situation, allowing time for the remaining eight soldiers to board. In spite of the severe damage to his helicopter, he once more skillfully guided his heavily damaged aircraft to safety. Without his courageous actions and superior flying skills, the last group of soldiers and his crew would never have made it off the battlefield.

President Barack Obama recognized Kettles' courageous contribution to these men and their families in the Medal of Honor ceremony. He said, "To the dozens of American soldiers that he saved in Vietnam, half a century ago, Chuck is the reason they lived and came home and had children and grandchildren. Entire family trees were made possible by the actions of this one man."

The medal recipient sees himself much more modestly. "I didn't do it by myself," he said. "There were some 74 pilots and crew members involved in the whole mission that day. So it's not just me ... the

medal is not mine; it's theirs." He also values something else much more than an award: "We got the 44 out. None of those names appear on the (Vietnam Veterans Memorial) wall in Washington. There's nothing more important than that."

Kettles' awards and decorations include the Distinguished Service Cross, the Legion of Merit, the Distinguished Flying Cross, the Bronze Star Medal with one bronze oak leaf cluster, Air Medal with Numeral "27", the Army Commendation Medal with one bronze oak leaf cluster, the National Defense Service Medal with one bronze service star, the Korean Service Medal, the Vietnam Service Medal with one silver service star and one bronze service star, the Korea Defense Service Medal, the Armed Forces Reserve Medal with bronze hourglass device, the Master Aviator Badge, Marksman Badge with carbine bar, the Valorous Unit Citation, the Republic of Vietnam Gallantry Cross with bronze star, the United Nations Service Medal, the Republic of Vietnam Campaign Medal with "60" device, and the Republic of Vietnam Gallantry Cross Unit Citation with palm device.

Kettles currently resides in Ypsilanti, Michigan, with his wife Ann.

BEST OF INDUSTRY @ LEGACY

RODNEY WYSONG

When the vice president of Wysong Enterprises Inc., Rodney Wysong, passed away in April of this year after a three-year battle with brain cancer, tributes poured in from throughout the rotorcraft industry. Customers, competitors, and peers used words like *remarkable*, *integrity*, *passion*, *amazing*, and *likeable* to describe who he was and how he worked and lived his 35 years on this earth.

In partnership with his father, Steve Wysong, the pair transformed Wysong Enterprises in Blountville, Tennessee, from a small avionics workshop into an internationally known maintenance, repair and overhaul shop. "Some fathers never have a chance to spend time with their children because of their career. I spent my entire career working and building this business with Rodney," said Wysong. "I shared more time with my son in 35 years than many parents spend in an entire lifetime with their children. From the time he was old enough to go to the office with me, he was tagging along and learning

the business. We have been to countless cities, trade shows, and events. We were able to see the world together and share our passion for helicopters. I am extremely blessed to have shared this dream together with him."

However, Rodney cared about much more than only business, and those other facets of his life fueled his work. Scott Emerine, president of the marketing firm, Branding Iron, said about Rodney, "When we traveled to trade shows across the country we spent a lot of time talking about family, friends and our faith. He always brought that energy and enthusiasm to work every day."

When not working, Rodney enjoyed hiking in the mountains, rock climbing, snowboarding, golf, visiting the Caribbean Islands, snorkeling, and pulling for his beloved University of Tennessee Volunteers. In addition to his parents and siblings, Rodney is survived by his wife Lauren Templeton Wysong.



BEST OF INDUSTRY @ WORK

HELICOPTERS WORK TO SAVE AND SERVE

By James Careless and Nada Marjanovich

It is widely realized that helicopters keep our citizens and communities safer. Here are two true stories that show how rotary-wing aircraft and their crews work to save and serve.

Saving Haitian Lives

For such a small nation, Haiti has been beset by enormous natural disasters. This year, Hurricane Matthew killed almost 900 Haitians. In 2010, the 7.0 earthquake that rocked the island nation killed 300,000. While such devastating events would challenge even the most developed countries, their impact is magnified in Haiti. The poorest country in the Americas, and one of the poorest in the world, is a place where vital services like health care are very difficult for many to access.

This is where Haiti Air Ambulance (HAA) enters. Established in 2014, the non-profit organization is the country's first and only helicopter EMS (HEMS) program. HAA's staff is composed of 12 Haitians and Americans, and a rotating team of volunteers. Air Methods is under contract to provide HAA with pilots, mechanics, and two Bell 407 helicopters. Everyone—and everything—works together to provide Haitians with an unprecedented level of HEMS.

After Hurricane Matthew ravaged the nation's southwestern peninsula in October 2016, HAA

was the first of first responders on the scene. In addition to treating and transporting victims, their Bell 407s flew surveillance missions over the devastated region that had completely lost communication with the rest of the country. HAA's primary HEMS mission was expanded to include ferrying medical personnel and supplies.

Unfortunately, Haiti's cash-poor medical system lacks the depth, integration, and completeness of health care systems existing in the First World. "There are so many unforeseeables, and lots of unpredictability," says Brandon Turman, a flight paramedic who volunteered with HAA after Hurricane Matthew. "There isn't always a readily available receiving facility, and the nature of the call or the receiver can change midstream," he says.

Rotary-wing lead pilot Robert Nelson is an Air Methods employee who has been flying for HAA since it launched in June 2014. "The hospitals aren't integrated into a network the way they are in the U.S.," says Nelson. This means that HAA's comm personnel have to get involved at multiple points to get patients the care they need.

Jacquelin Petit, HAA flight EMT, has experienced





these challenges first hand. Petit started his career as a ground EMT, then HAA hired and trained him and two other Haitians to become the country's first certified flight EMTs. "The centralized emergency system (Haiti's version of 911) isn't always functional," says Petit. "There are many steps to getting the patient to proper care."

"Every flight that comes in is going to have its own personality." Despite that fact, Arnold and HAA's team members are surmounting challenges and saving lives every day in Haiti. Together, they make a real difference in a country where fast, locally-based aerial assistance has never been available before.

"There's nothing canned here," adds rotary pilot Vincent Arnold.





HELICOPTER INSTITUTE

TRAINING COURSES PROVIDED:

- BELL 206
- BELL 407
- TH-67
- OH-58
- NVG
- IIMC
- PVT-ATP
- CFI-CFII
- NVG IP

FULLY CUSTOMIZED TRAINING SOLUTIONS TAILORED TO THE **MISSION PROFILE**

- * Additional Aircraft / Courses By Request
- ** Insurance Accepted
- *** Off-Site Training

Meet Your Instructor!



- 2013 HAI Flight Instructor of the Year Award Recipient
- Previous OEM Instructor
- FAA Pilot Examiner
- Master Instructor
- *Rotorcraft Pro* Columnist

Contact Us:
1-561-386-6078 (US)
info@helicopterinstitute.com
Locations: TX, FL, IL

WWW.HELICOPTERINSTITUTE.COM

BEST OF INDUSTRY @ WORK

Serving Canadian Firefighters

The May 2016 wildfire in Fort McMurray, Alberta, was Canada's most expensive natural disaster, costing \$3.58 billion. The 1.5 million-acre blaze raged for two months. Thanks to the around-the-clock efforts of 60 helicopters from local, regional, and government operators, the financial, physical, and human toll was prevented from becoming far worse. Out of the thousands of people affected, only two died. These fatalities occurred in a car crash on the highway out of the city.

Four local helicopter companies played a pivotal roles in fighting the Fort McMurray wildfires: Phoenix Heli-Flight, Summit Helicopters, Vortex Helicopters, and Wood Buffalo Helicopters (owned by Aurora Helicopters). While these companies normally fly oil industry personnel in and out of the Alberta oil sands, fighting a raging fire also came naturally to them. "Hauling water buckets and 'bird-dogging' hot spots for fixed-wing water bombers is something that we do all the time," said Michael Morin, president and CEO of Aurora Helicopters. "Forest fires happen here every year. Normally they don't pose any real threat to our city and communities, but in May 2016, we suddenly found ourselves in trouble."

The flying conditions were extremely difficult for helicopter pilots working the fire. "With all the wood and chemical smoke aloft, we had to issue respirator masks to our crews to keep them

safe," said Morin. "The air up there was truly poisonous." The thick, swirling, and toxic smoke limited visibility to near zero, and the heat and high winds battered aircraft as they struggled to move personnel and equipment, drop water, and direct fixed-wing water bombers to their targets. These atmospheric factors, worsened by ever-changing wind headings, interfered with the helicopters' attempts to evacuate oil industry personnel from the most threatened areas.

While the helicopter crews were flying in these challenging conditions, their own Fort McMurray homes and families were at risk below. Even the operators' bases at Fort McMurray International Airport were in danger of incineration, as were the ad hoc landing areas to which they retreated. "We moved our equipment out of the airport when the fire started to come through, and then had to move it again when the flames caught up with us at our backup location," said Paul Spring, Phoenix Heli-Flight's president and operations manager. "Fortunately, the heroic efforts of firefighters, combined with sprinklers running on our airport hangars and fuel tanks, did the job. But things were very close more than once."

Despite all these hazards, Fort McMurray's helicopter companies, and the many others who came to their aid, came through when it counted most. Thanks to the pilots' willingness to put themselves in harm's way, Canada's most costly natural disaster was prevented from becoming its most tragic.



