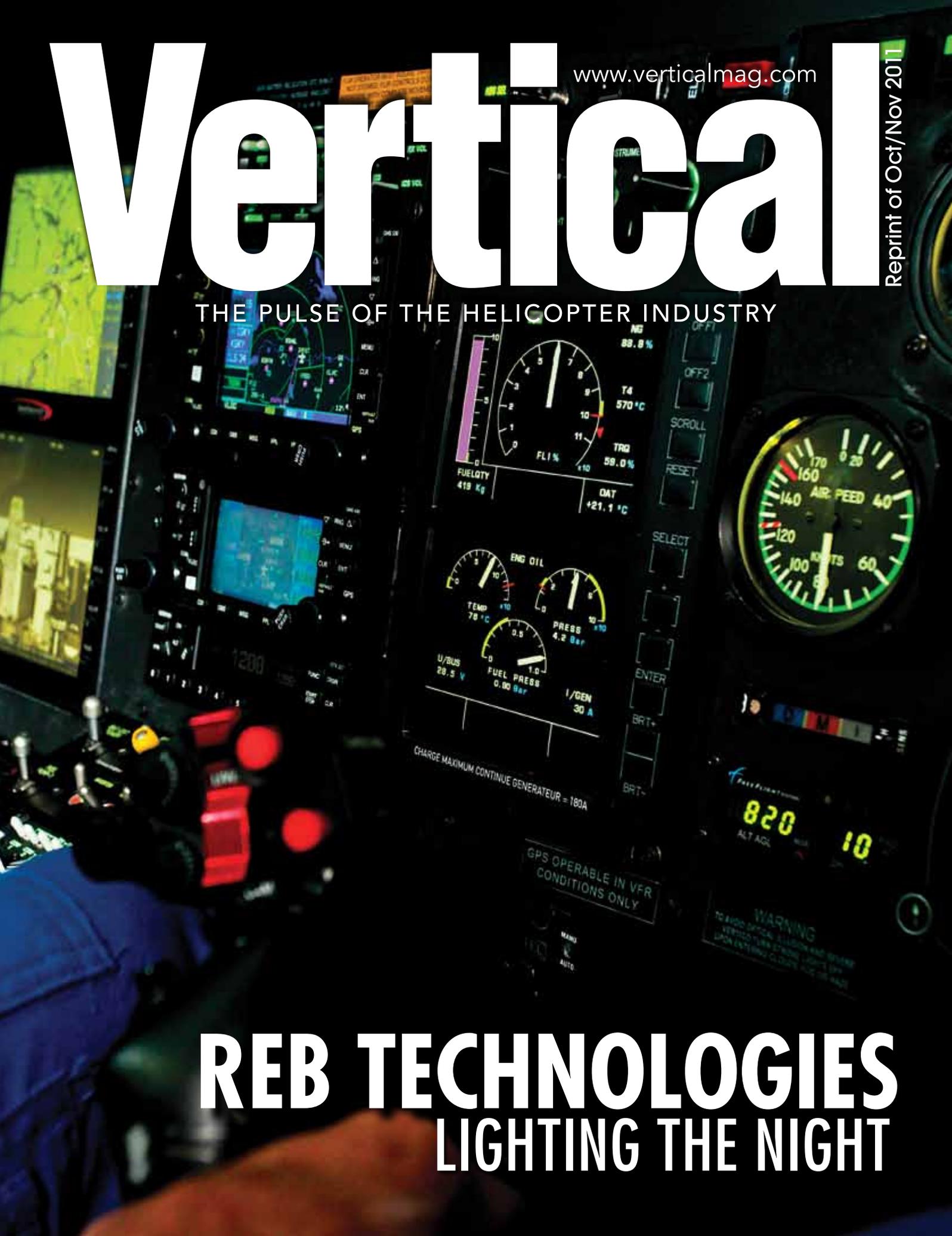


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THE PULSE OF THE HELICOPTER INDUSTRY



REB TECHNOLOGIES LIGHTING THE NIGHT



REBTECH was the first company in the aviation industry to utilize NVIS white lighting instead of NVIS green lighting for instrumentation. This allowed for better illumination of panel lighting for both day and night applications, and meant panel colors would remain within their original color spectrum.



Lighting the Night

From cockpit modifications to external aircraft lighting systems, REB Technologies continues to focus on the one thing it knows best — creating lighting solutions that enhance the capabilities of night vision goggles.

Story and photos by Sheldon Cohen

In an age when many companies are trying to offer as many different products and services as they can, there are still a few who focus on doing one thing very well. In the case of REB Technologies, a.k.a. REBTECH, that one thing is creating aircraft lighting solutions that enhance the use of night vision goggles (NVGs).

REBTECH knows lighting. Not only does it have a team of executives who are pioneers in the field, the company itself has spent the last 15 years developing a number of night vision imaging system (NVIS) lighting innovations. Now considered a leader in internal and external NVIS lighting solutions, this Texas-based company's work can be seen in aircraft flying virtually everywhere around the globe: from Afghanistan to New Zealand. Plus, REBTECH provides NVIS lighting research, development and consultation services to a wide range of military and civil customers, and has an extensive list of supplemental type certificates from the United States Federal Aviation Administration and other worldwide aviation authorities.

If you're thinking a company with that kind of global reach is a large multinational corporation, think again. REBTECH is a family owned and managed business, with a small, tight-knit team that focuses on quality, custom solu-

tions and furthering its expertise in aircraft lighting.

HUMBLE BUT EXPERIENCED BEGINNINGS

REBTECH was founded in 1996 by Dick Borkowski, whose career in aviation instrumentation dates back to the early 1960s. Among other things, Borkowski was involved in the initial development of MIL-L-85762, the military specification that defines the optical performance requirements of NVIS-compatible interior lighting and displays. He used his extensive knowledge base not only to found the company, but successfully complete REBTECH's first contract, a major project for the newly formed L-3 Avionics Systems.

In those early days, Borkowski had only a small office and three employees. The team had to get the most out of everything it did. They even had to use the office closet as a functional workspace: as a darkroom for testing and evaluation. While the company now has 20 full-time employees and a 13,000-square-foot facility in Bedford, Texas, some 10 miles southwest of the Dallas/Fort Worth International Airport, its people still maintain that hallmark of innovation and getting the most out of every solution.

Innovation has been one of the pillars that helped the company grow, but so has offering its solutions to new

REBTECH'S "Fab Five" (l to r) — Greg Winchell, Jeff L. Stubbs, Richard Borkowski, Tim Weiland and James Garrett — combine for some 135 years of lighting experience.



BOTH In addition to providing the NVG lighting modifications for the AS350 B2 and EC120 B customer-instruction helicopters at American Eurocopter's facility in Grand Prairie, Texas, REBTECH did the lighting modifications for AEC's new AStar NVG flight training simulator, too.



industry sectors when the time was right. Initially, the majority of REBTECH's business was installation kits for military aircraft, but stricter guidelines for NVG lighting in civilian air medical and law enforcement has led to increased work in these parapublic sectors. Said current president Richard Borkowski: "Our product is no longer just made for the battlefield; it is now used for public safety and the overall safety of flight. Things have really changed now that this technology is saving lives and keeping crews and passengers safer in transport." Overall, the past five years have seen the company experience steady growth in all of its markets — and that does not appear to be slowing down.

Another pillar of the company's success came from fostering its "one-stop-shopping" promise, which was furthered in 2007 when REBTECH joined sister company Aero Instruments in one facility. That combination meant

Aero's test equipment and trained personnel could not only provide a more complete solution for customers, but that REBTECH now had the wherewithal to become an FAA-approved Part 145 repair station, with authorization for avionics inspection and repair.

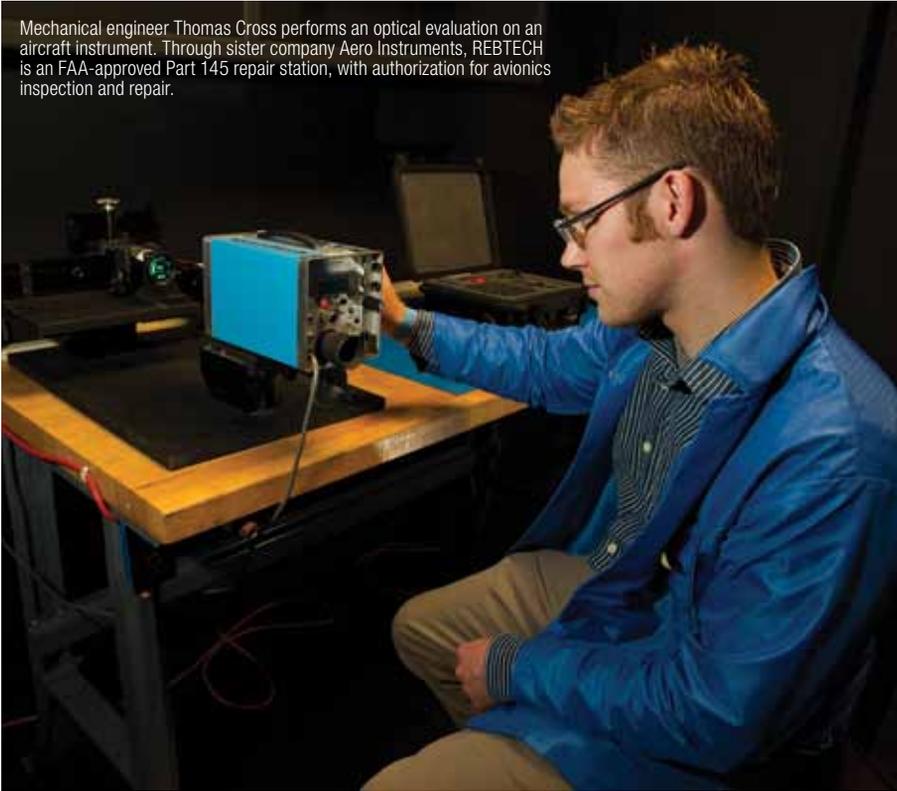
FURTHERING THE FOUNDATION

The final pillar of its success has been its people.

Starting at the top, the mantle of leadership previously carried by Dick Borkowski has been passed on to an able successor, his son Richard. Since taking the day-to-day reins as president and chief operating officer in September 2007, Richard has set about furthering the foundation his father built. One aspect of that has been the formation of the "Fab Five," as Richard calls them, "the most experienced lighting team in the industry." Along with the younger Borkowski, the team features Jeff Stubbs, Tim

"THIS TEAM MAKES UP THE LIFELINE OF THE COMPANY, [WE DEPEND ON THEM] MAKING THINGS BETTER AND ALWAYS LOOKING FOR IMPROVEMENTS. WE ARE ALWAYS TESTING NEW FILTERS AND TRYING NEW INNOVATIONS. IF YOU DON'T IMPROVE YOUR PRODUCT, YOU WILL BE LEFT BEHIND."

Mechanical engineer Thomas Cross performs an optical evaluation on an aircraft instrument. Through sister company Aero Instruments, REBTECH is an FAA-approved Part 145 repair station, with authorization for avionics inspection and repair.



Weiland, Greg Winchell and Jim Garrett, who combine for some 135 years of lighting expertise. Richard himself has 20-plus years experience and came over from Hoffman Engineering to provide REBTECH with additional expertise in standards testing.

Stubbs, the company's long-time senior vice-president, has an extensive background in edge-lit panels and switches, and has been in the NVG field since 1988. He was directly involved in the development of NVIS white filters and LED applications for NVG lighting. And, his work with the FAA was instrumental in helping develop the current standards by which REBTECH creates its NVG supplemental type certificates (STCs).

Weiland, REBTECH's director of program management, joined the company in 2007, after 20 years in the U.S. Marine Corps, amassing 2,000 flight hours under NVGs. In the last four years, Weiland has furthered that first-hand experience: overseeing countless REBTECH lighting installations around the world.

Winchell joined the company in 2009 as director of sales and marketing. In this role, he uses more than 25 years of NVIS filtration and lighting experience to better understand the needs of the market, and promote REBTECH's

solutions.

Finally, Garrett, the company's new VP of operations, was brought on board in 2010 to utilize his extensive experience in instrument manufacturing and repairs and NVIS lighting technology. Prior to REBTECH, Garrett worked on some of the military's first NVG programs, developed a patent for aircraft instrument lighting design, and served as NVIS lighting co-chair for the RTCA special committee that helped develop the DO-275 operational requirements for NVG implementation into the U.S. National Airspace System.

Richard Borkowski described this team as key to the company's ability to remain a leader. "This team makes up the lifeline of the company, [we depend on them] making things better and always looking for improvements. We are always testing new filters and trying new innovations. If you don't improve your product, you will be left behind."

Although the Fab Five provides an exceptional level of experience, Richard was quick to point out that everyone at REBTECH is highly qualified and a valuable part of the company's success. "Everyone at our facility has experience working with instrumentation and has been involved in every facet of what goes into a panel."

CONTINUING THE INNOVATIONS

At REBTECH, "lighting is the key, and anything lighting-related is where our strength lies," said Winchell. That focus and expertise translates into unique customized lighting solutions that meet the specific needs of each customer, no matter how complicated.

A recent contract with Air Evac Lifeteam is a good example of this. Air Evac's sizable fleet of 147 air-medical-configured Bell 206L LongRangers needed lighting kits — but only 17 of them had matching panel layouts and manufacturer instrumentation! It confirmed what the company has always said: there is no cookie-cutter solution when it comes to NVG lighting, and no matter how big or how small the project, it must begin with a proper evaluation of each aircraft to ensure the FAA requirements for NVG compatibility can be met. And, for each aircraft that does not already meet the necessary criteria, proper STC documentation must be completed. This understanding and comprehensive process is something REBTECH feels is one of its greatest strengths.

Of course, custom solutions always work better when they are based on quality products, another area REBTECH

Technician Earl Shepard performs a functionality test on an aircraft instrument. By bringing Aero Instruments into its facility, REBTECH has been able to better utilize Aero's test equipment and trained personnel.

seems to have an upper hand in: it was the first company in the aviation industry to utilize NVIS white lighting, instead of NVIS green lighting, for instrumentation. This change allowed for better illumination of panel lighting for both day and night applications, and meant that panel colors would remain within their original color spectrum and have exceptional daylight readability.

REBTECH markets its NVIS-white filter technology under the Shadows name. With Shadows filters, colors remain consistent on instrumentation and moving maps, and both red and amber caution lights can be seen in their true colors, both under goggles and in daylight conditions. The introduction of Shadows technology also made it possible for REBTECH to mount filters within the housing of flight instrumentation and flat-panel displays. And, this approach made cockpit modification more cost-effective over the lifecycle of the helicopter, a boon for the civilian market.

REBTECH's products and solutions also suit the civilian market because they can be applied to a wide variety of helicopter models. STCs are required for NVIS lighting modifications to be FAA-compliant, and REBTECH currently holds more than two dozen STCs (with the FAA and other global aviation authorities) for a variety of Bell, Eurocopter, MD and Robinson helicopters. The company also is in the midst of developing STCs for the Sikorsky S-61 and S-92 and the MD 900.

Its first STC, in 2001, was for the Bell 206 series, and used its portable Spider Light system, which was REBTECH's bridge into the civil market. Among the first helicopters on which this kit was installed were the Bell 206s used by the Bell Training Academy near Fort Worth, Texas. The Spider Light spawned the Shadows products, and in 2004 REBTECH upgraded Bell's training aircraft with the new filters, which are now installed on the academy's Bell 407, as well.

Other key training aircraft REBTECH has provided NVG lighting modifications for include American Eurocopter's AS350 B2 and EC120 B helicopters, which are used for customer instruction at the factory in Grand Prairie, Texas. And, it did the lighting modifications for American Eurocopter's new NVG flight simulator, too.

Recently, REBTECH teamed up with Night Flight Concepts of Port St. Lucie, Fla., to obtain FAA STC approval for its Robinson R44 night vision cockpit lighting system, and to offer certified night vision initial and recurrent flight crew training. That training helps REBTECH further its complete-solution mandate, ensuring customers can make the best and safest use of their newly outfitted aircraft.

REBTECH also trains its customers' mechanics in the proper maintenance procedures for the



According to REBTECH president Richard Borkowski, everyone at REBTECH is highly qualified and is a valuable part of the company's success. Here, we see AMP Michael Green perform an instrument bench test.



At REBTECH, all projects begin with a proper evaluation. Here, Steven Clemens, engineering lead, and Josh Crooks, lead inspector, perform an incoming inspection and engineering evaluation.



In its early days, space was at a premium — REBTECH even used the office closet as a darkroom for testing and evaluation. Now, the company has a spacious, modern, 13,000 square-foot facility.

modified equipment. This allows repairs to be performed by approved FAA avionics service centers, instead of the manufacturer, thus saving significant amounts of time.

FINISHING THE SOLUTION

In addition to NVIS lighting installations and related services, the company is involved in creating a variety of general lighting solutions for both fixed- and rotary-wing aircraft. For example, it recently completed a custom emergency lighting system for a Casa C-212 military cargo

transport plane; the system enables the 212 to fly as a passenger transport aircraft when needed.

It is also developing a variety of new products that further the safety of flight. A new touch-screen display screen is being field tested with a law enforcement agency, to positive reviews. A medical equipment display that, while remaining compliant with NVG flight requirements, will offer improved daylight readability is in the works. And, the company is even working on covert lighting for both law enforcement aircraft and the first law enforcement boat to be outfitted with its system (*see p.21, Vertical 911, AMTC 2010*)

No matter what the industry sector or transport type, REBTECH's innovations continue to be driven by the extensive lighting experience of its personnel, and the company's commitment to quality solutions and customer flight safety. The future of a company that dedicated to excellence in lighting can only be summed up in one word — bright.

Sheldon Cohen is a California-based photographer who has been shooting professionally for the past 15 years. He is currently freelancing for several corporations and publications throughout North America, and is engaged in a fine art project to photographically capture the unique textures of the natural world.



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- PMA Approved
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