company spotlight

Van Horn Aviation is using proven tail rotor technologies to enhance main rotor performance

By Kim Rosenlof, VHA Marketing Coordinator

Five years ago, VHA was an unknown company of four people from Arizona that had just certified its composite tail rotor blade for Bell 206B/L and OH-58A+/C models. The company had certified a composite tail rotor blade for the UH-1 Huey in 2007, but the market for Huey rotor blades was scarce and sales were sluggish. VHA founder and president James Van Horn, an engineer and former U.S. Army helicopter pilot, sought to improve his composite rotor blade design to help a larger legacy fleet gain more performance. He found what he was looking for in the Bell 206 fleet.

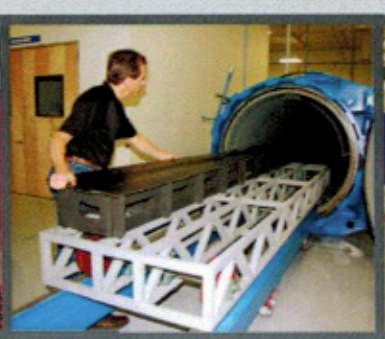
Featuring an efficient laminar flow airfoil design, swept tip, and stronger yet corrosion-resistant composite materials, VHA's 206 tail rotor blades increase tail rotor authority with less pedal force while reducing vibration and overall aircraft noise. A service life of double the OEM's metal blades and more durable stainless steel pitch bearings result in decreased direct operating costs. VHA also published new 206L series Flight Manual Supplements with increased lift capability charts in 2012.

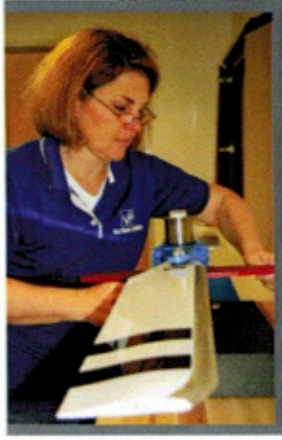
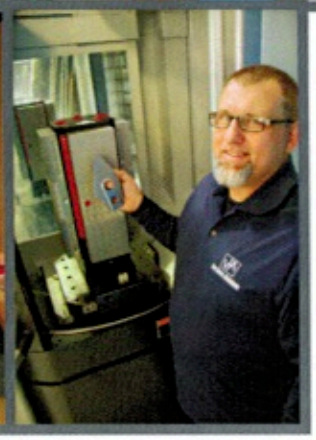
The result has been overwhelming acceptance by the light and medium helicopter community of VHA blades; from LongRanger operators who use the new charts to win contracts, to JetRanger and UH-1 operators who enjoy the increased tail rotor authority in high and hot conditions.

"Van Horn is a company that typically underpromises and overdelivers," said one 206 operator at Heli-Expo 2014. "Everything you've said about the [206 tail rotor] blades, you've met or exceeded."

With a lean staff of only 16 people, VHA performs the majority of its engineering, design, testing, certification, and manufacturing in-house at its 23,000-sq. ft. facility located in Tempe, Arizona. Purchased in April 2011, the facility received a complete overhaul before VHA personnel could relocate from the company's previously leased 6,500-sq. ft. facility. The additional space allowed VHA to expand its prototyping and manufacturing capability with new computer-controlled machining centers, modern paint and prep booths, dedicated kitting and lay-up clean rooms, and an expanded inspection center. The company has nearly tripled its staff since April 2011, and continues to slowly increase its workforce to meet production and prototyping demands.

The facility expansion was a critical component of the company's leap from producing 4-foot tail rotor blades to 12-foot main rotor blades for the MD500 series. In flight test from August through December 2013, VHA's newly designed composite MD530F main rotor blades performed well in forward flight to 130 kts and executed a series of high-g maneuvers. Although VHA was on


(clockwise) 206 test instrumentation, VHA MD530F tool rolling into autoclave, VHA painter Gilbert Chavez prepares 206 tail rotor blades for striping, MD530F hover April 2011, VHA employees prepping blades for paint, VHA machinist Kelly Lessley shows a 206 tail rotor blade root fitting next to one of four CNC machining centers in the VHA facility, VHA Quality Manager Marie Dwyer balances 206 blades.

track to certify these blades for Heli-Expo 2014, other priorities by the aircraft owner shut the program down temporarily.

Armed with the technology from its successful 206 tail rotor blades and lessons learned from the MD530F flight test program, VHA has already begun building a set a conformed 206B3 main rotor blades and intends to start flight testing by June 2014. The company plans to obtain FAA STC/PMA certification on the 206B3 JetRanger blades by the end of the year, with flight test and certification of 206L4 LongRanger main rotor blades in 2015. VHA will also restart the MD500 series main rotor blade development program in 2015 using a MD500D or MD500E.

In addition to prototyping and production, VHA also recently opened a repair station at its Tempe facility. Named Van Horn Repair, FAA authorized repair station specializes in repair, repaint and rebalancing of VHA composite rotor blades only.

For more information about Van Horn Aviation or its products, please visit www.vanhornaviation.com.