Reflecting on the life of William Thaxton Earheart, Jr., an AEDC pioneer

Bill Earheart passed away on July 27 after a battle with cancer. I only really got to know him after he retired from the U.S. Air Force's Arnold Engineering Development Center (AEDC).

He was the saxophone player in a music group at Trinity Lutheran Church in Tullahoma with my wife, who was the keyboardist for the group. I soon found out that he made wonderful music with his sax. I also knew that he had wired much of the church's sound system and was an avid ham radio operator.

It wasn't until I talked to his lifelong friend, AEDC Fellow Robert "Bob" E. Smith Jr., at his funeral visitation that the full scope of the important role he quietly played at AEDC came into view.

Bill Earheart and Bob Smith grew up in Pulaski, Tenn. They attended public school together, attended Vanderbilt University together, were both married the same week (served as each other's Best Man) and started work for ARO (Arnold Research Organization) at AEDC the same day. They were the second and third AEDC employees to celebrate 40 years of employment at the center in 1991.

During their professional careers both became recognized experts at what they did but in different fields. Smith's was testing jet engines, Bill's was electronics.

Bob even told me a story about how, as kids, Bill had built an instrument to measure how much electric voltage they could hold on to. The instrument was the size of a cigar box with two electrodes and a variable power supply. One boy held on to the electrodes with pliers while the other slowly increased the voltage until the shockee had to turn loose. After lots of highly competitive practice, either could hold up to 90 volts. Something our safety folks would have a coronary about today.

Early on at AEDC, Bill was tasked to redesign the control system for the variable geometry flex plate nozzle for the von K‡rm‡n Gas Dynamics Facility's supersonic tunnel A. The original control system did not provide the required positioning accuracy and caused failure of one of the critical flex plates.

He completely redesigned the original system and incorporated the most advanced, state-of-the-art, electronic components to achieve the required control accuracy. The dozens of modules required for the Tunnel A nozzle were constructed by AEDC technicians under Bill's direction. The accuracy of this control system was better than that of then available commercial systems. Bill's design stood the test of time for four decades according to AEDC Fellow Jerry Jones who worked with Bill in Tunnel A in the early years.

AEDC had the first of the second-generation computers installed anywhere in the country -- the ERA 1102s. Each major test facility had one. The memory module in VKF failed, and the manufacturer determined that it was not repairable. Bill rose to the challenge

once again and conceived a new memory module that restored this critical computer to operational service.

Chuck Schuler, a retired AEDC engineer, recalls that the big Schlieren system in Tunnel A, that allowed engineers to look at the shock waves coming off the model being tested, vibrated causing a fuzzy image. The mirrors were so big and heavy that it proved impossible, despite several efforts, to reduce the vibration to an acceptable level.

Bill once again accepted the challenge. His solution was to let them vibrate and to add an electronic shaker to the beam splitter (knife edge) in the optics so that the splitter moved exactly in phase with the mirrors. This synchronized movement produced a sharp image critical to understanding the flight characteristics of the model in the wind tunnel.

Bill's solution predated image stabilization in today's digital cameras and camcorders that operate on a similar principle by almost 50 years.

According to retired AEDC engineer Jim Thompson, after Bill moved to ETF as a manager he continued to play a significant role and was the key player in getting the first PC workstations installed throughout ETF. "He was a systems guy all the way," Mr. Thompson said.

Throughout his life Bill had a love of music. He was a very good musician and could have had a career in music had he chosen to. Bill was a perfectionist in all he did, including his music. He told my wife that all he expected from anyone was their very best, and if it wasn't good enough, don't bother. He had the praise team band striving for the same perfection

He would often give other musicians a distinctive Bill Earheart look if they played a wrong note or were out of sync. He was famous for that look.

His daughter Janice of Memphis, Tenn. told me that her dad never spanked her, but with that look he made her feel bad that she had not behaved. She said that he would never ask anyone to do something that he could not do himself.

His son, William Thaxton Earheart III, who plays keyboard for Hank Williams Jr., said his real regret is that he never got his dad into a recording studio to record any of his music.

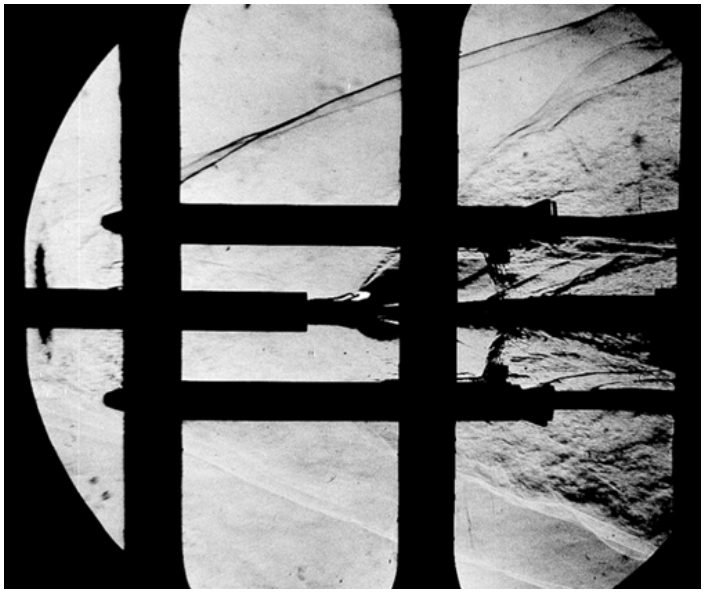
Bill played his sax from elementary school on. He and Bob Smith wound up playing in the same band all the way through college and beyond. Smith played the trumpet. Even at AEDC Earheart played with Opal Wieners Band and the South Jackson Street Band. And he often played at the then AEDC Officers' Club. For the last 10 years he played with Tullahoma's Trinity Lutheran Church Praise Team Band.

I remarked to Bob Smith that I had really enjoyed hearing Bill play sax even when the Trinity Praise Band was just practicing. Bob said, "That was nothing new; students used to bring their books and just listen to the small band that he and Bill were in at Vanderbilt University when they practiced, just to hear Bill play the sax."

For 40 years he quietly, with little fanfare, played a key role behind the scenes at AEDC, insisting on perfection from himself and those around him.

The work he did at AEDC played a key role in establishing AEDC's role and worldwide reputation. He was an AEDC hero who would have made General of the Air Force Hap Arnold proud.

Bill Earheart playing the sax and giving another player the famous Earheart look when the other musician missed a note.



A VKF Tunnel A Schlieren photo of Titan III M staging test in 1967. The Schlieren image shows the shock waves coming off the model being tested.

Bob Smith, retired vice president and chief scientist for ARO (left) and Bill Earheart were the second and third AEDC employees to reach 40 years of service at AEDC.