

At a recent AEA International Convention & Trade Show, AEA President Paula Derks asked member companies the following question: What's working for you? Derks challenged AEA members to share their success stories, best practices and ideas that are working for their respective companies. This article is part of a series that highlights how AEA member companies recognized challenging economic circumstances, and how they responded and overcame them.

# What's Working?

Business initiatives that are elevating companies to success

STORY BY THOMAS INMAN

## Safe Flight Instrument Corporation

# Charting a consistent course

**R**ecently, Safe Flight Instrument Corporation celebrated 70 years under continuous management. All this time, the same family has been at the helm, and the company claims the distinction of being the world's oldest continuously operating avionics company. In September 2016, Safe Flight received the Safety Award from the Eastern Region Helicopter Council for its Powerline Detection System for helicopters. The award is in recognition of Safe

Flight's innovative lifesaving products and for its 70-year commitment to making flying safer.

"ERHC salutes Safe Flight for developing innovative safety products such as the Powerline Detection System, which have greatly contributed to the advancement of aviation safety," said ERHC

Chairman Michael Philbin.

Safe Flight's PDS is European Aviation Safety Agency and Federal Aviation Administration certified and operates worldwide to detect 50 Hz/60 Hz powerline frequency emissions. The PDS is a lightweight (less than 2 pounds installed) passive system that alerts the pilot when approaching an energized powerline. The system provides both a visual and aural warning to the crew. As the aircraft approaches the hazard, the aural tone intensifies, cautioning the pilot.

This isn't the only award the company has earned, so clearly, something is working well for Safe Flight.

Near the present location of John F. Kennedy International Airport stood the U.S. Naval Air Station in Queens, New York. At the air station, in 1937, Leonard Greene, a chemist in his uncle's rubber cement company, was preparing for a flying lesson. Greene looked up to witness a small airplane that dropped suddenly from the sky. Witnessing the accident changed his life and the general aviation industry.

The accident he witnessed was the result of a stall. Greene wanted to find a way to warn pilots of an impending stall. He found a way, and nearly every pilot is familiar with his invention, the stall warning device. Greene established Safe Flight to produce the stall warning device in 1946. His invention



The Powerline Detector uses a VLF receiver to monitor the radio waves generated by power lines.



*The Powerline Detector in flight*

was an instant hit. In 1947, *The Saturday Evening Post* called the stall warning “the greatest life saver since the invention of the parachute.” The following year, consolidated Vultee Aircraft Corporation offered the stall warning indicator as an option on both the Stinson 108 Voyager and Station Wagon.

Getting started wasn’t easy. After World War II, he borrowed money from his mother, bought a Fairchild 24, and got into the air taxi business. Among his passengers were the legendary golfer Sam Snead, R. J. Reynolds’ (of tobacco fame) wife, Katharine, and bandleader Guy Lombardo. By the fall of 1946, he was able to rent a two-horse barn on Russell Street in White Plains, New York. There, he started Safe Flight as an instrument company and hired Lottie Ehlers as his first employee. Greene also called his taxi service Safe Flight, a name he borrowed from a matchbook cover which stated, “Have A Light, Have A Safe Flight.”

In 1949, the Flight Safety Foundation awarded Greene its Air Safety Award for distinguished service in achieving safer utilization of aircraft. With stick shakers and stall warning indicators being produced and sold, the barn was no longer big enough for the company. In 1950, Safe Flight moved to a larger facility on Water Street in White Plains.

The following year, Safe Flight developed its first angle of attack indicator for the U.S. Navy. By the end of the 1950s, the company had pioneered an automatic throttle system, and the Speed Command of Attitude and Thrust computer. Both

systems are notable, because they were produced before the era of solid-state and digital computing systems.

Safe Flight’s second facility was larger, but it was nearly uninhabitable in the dead of winter and in the heat of summer. The heating system kept the pipes from freezing but didn’t offer much comfort to the workers. In the summer, the employees would rig a hose to spray water on the roof in an attempt to keep the building cool. In 1964, the company moved into a new facility in White Plains.

In 1967, Safe Flight received the Employer’s Merit Award from the state of New York.

Not satisfied to rest easily on its many safety products, Safe Flight invented wind shear warning in 1975. United Airlines tested it and had the system certified on its Boeing 727 and 747 airliners.

In 1982, Safe Flight received the first of two Department of Defense awards for quality excellence. In 1991, Greene was

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Safe Flight's current location in White Plains, New York, (above) and the company's first building (right)

## WHAT'S WORKING?

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inducted into the National Inventors Hall of Fame. Four years later, the company created the N1 computer, which Cessna adopted on its Citations. In 1999, the company developed its Powerline Detection System for rotorcraft.

It was inspired by another accident. In this case, Greene watched an emergency medical helicopter get loaded up, and he observed as the pilot forgot about the nearby power lines.

In 2001, Randall Greene became president of the company, and Leonard Greene received *Aviation Week's* Laureate Award for Lifetime Achievement. During this century, the awards and inventions keep coming.

Sadly, in 2006, Leonard Greene died at the age of 88 after earning 100 patents. That same year, Safe Flight developed the Angle of Attack/Stall Warning System for gliders. In 2008, the company won the Embraer Best Suppliers Award for technical excellence in product development. In 2011, Randall Greene received the *Aviation Week* Laureate Award for company contributions in safety for business and general aviation aircraft. In 2014, Leonard and Randall Greene received the 2014 Nall Award for their contributions to aviation safety.

2016 was an extremely busy and productive year for Safe Flight. In April, Textron Aviation selected Safe Flight to supply its SCc system, making the Cessna Skyhawk 172 the first aircraft in its class to feature a dedicated angle of attack indexer system as standard equipment from the factory. Initial deliveries of Skyhawks fitted with the SCc started last year.

"This competitive win at Textron Aviation solidifies Safe Flight's SCc as the angle of attack system of choice in the general aviation market," according to Matt Greene, executive vice president. "Safe Flight remains committed to improving flight safety and aircraft performance through AoA. We applaud Textron Aviation for recognizing the operational benefits of AoA for flight training and general aviation use and for its selection of Safe Flight's SCc as standard equipment on the most successful aircraft ever

produced."

Safe Flight's SCc is one of the most accurate AoA systems available to the general aviation market throughout the entire flight profile. SCc aligns with the Federal Aviation Administration's objectives of reducing loss-of-control incidents through low airspeed awareness by providing both flashing red LEDs and an unmistakable audio output that alert the pilot of increasing AoA and impending stall.

The SCc Lift Transducer precisely measures the wing's leading edge stagnation point and flow field, a precise measurement of AoA regardless of aircraft weight, wing loading, slip condition or center of gravity. The indexer computer uses an LED-lit display, making it easy to read in all lighting conditions, and features a pilot-settable reference marker for establishing AoA climb, cruise and approach AoA targets.

In addition to low airspeed awareness, the SCc provides the pilot with AoA-based guidance for a variety of high-lift operational conditions such as normal and short-field takeoff, climb, wind-adjusted AoA cruise speed for maximum range, maximum endurance and guidance for normal and short-field landings.

The SCc also is available from Textron Aviation as factory-optional equipment on the Cessna Skylane 182 and Cessna Turbo Stationair 206.

In May 2016, West Star Aviation announced a new agreement between the companies to provide economized pricing on Hawker Auto Throttle and Aviation Partners Winglet STCs when installed as a package.

West Star Aviation has extensive experience in the installation and modification of these systems and assisted in the original implementation and engineering of these products. Hawker operators continue to gain significant performance benefits when the West Star Aviation/Safe Flight Instrument Auto Throttle System and Aviation Partners Winglets are combined.

The Auto Throttle System offers precise and smooth speed control through the entire flight envelope, during ATC-speed requests, and in virtually all maneuvers of the aircraft by

providing continuous and precise engine thrust control, VNAV speed targets, as well as AoA referenced speed protection. The system offers takeoff to touchdown automated thrust and speed control through a thrust lever control servo for optimized performance, reduced crew workload and increased passenger comfort.

Aviation Partners Winglets feature a modern design, composite graphite skin, full-depth bonded honeycomb core, and a polished aluminum leading edge. This performance-enhancement system is less than 120 pounds for both Hawker 800 and 800XP. API Winglets are installed on more than 9,000 aircraft, including commercial, corporate and military.

In November 2016, Safe Flight announced that AutoPower, Automatic Throttle System, would be standard on the Embraer Legacy 650E. The system was selected based on Safe Flight's proven experience in developing and delivering nearly 10,000 automatic throttle systems.

The AutoPower System for the Legacy 650E is a full-regime automatic throttle system and will provide automatic thrust schedule setting as well as IAS/Mach speed control from takeoff through landing phases of flight. The system will be fully integrated with the aircraft's avionics suite, decreasing pilot workload and allowing greater situational awareness.

The full authority ATS will be internationally certified by Embraer, installed at the factory and also available for the retrofit market. The system will build upon the demonstrated performance of several recent AutoPower System certifications. Initial production deliveries and entry into service was expected by the end of 2016.

According to Matthew Greene, working for Safe Flight is having the same management for more than

70 years, with the same family at the helm, charting a common course. He said the goal is to "solve complex aerospace problems with simple, yet intricate solutions. We know who we are, and we don't try to overextend. We stay focused on our core capabilities."

Most certainly, charting a course and sticking with it has worked extremely well for Safe Flight. □

*To learn more about Safe Flight, visit [safeflight.com](http://safeflight.com).*



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