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# MASSA Celebrates 70 Years Of Innovation and Invention

The year 2015 is a platinum year for Massa Products Corp., and business is thriving. The Massa Family company was founded in 1945 as Massa Laboratories by Frank Massa, an industry pioneer in electroacoustics. He was heralded by *Sea Technology* (November 1989) in the ST Special Report "Sonar Transducers: A History", which stated: "Frank Massa is considered by most the 'father' of modern sonar transducer development." The company has resonated in the industry over the past 70 years and has evolved to embody what their tagline decrees: "Generations ahead in sonar and ultrasonic technology."

Massa maintains both family ownership and leadership, and still "prides itself on making products that no other firm has been able to do," according to then-*Sea Technology* editor David M. Graham in the magazine's November 1985 issue. This is the case with both military contracts and commercial endeavors, setting Massa apart in industry as the company that does not just deliver products, but delivers solutions, too. They do this by combining strong production engineering with creative electroacoustic designs.

More than 160 fundamental patents in the field of electroacoustics were written by, and awarded to, Frank Massa (founder, former president, CTO, chairman), Frank Massa Jr. (former president), and Donald P. Massa (current president, CTO, chairman). In sonar, from 1945 to 2015, Massa has been awarded more than 650 development and production contracts for sonar transducers and systems used by the U.S. and Allied navies, with more than 60 having been received during the past five years.

Massa also produces transducers for the commercial oceanographic community for use in systems such as sub-bottom profiling and seafloor map-

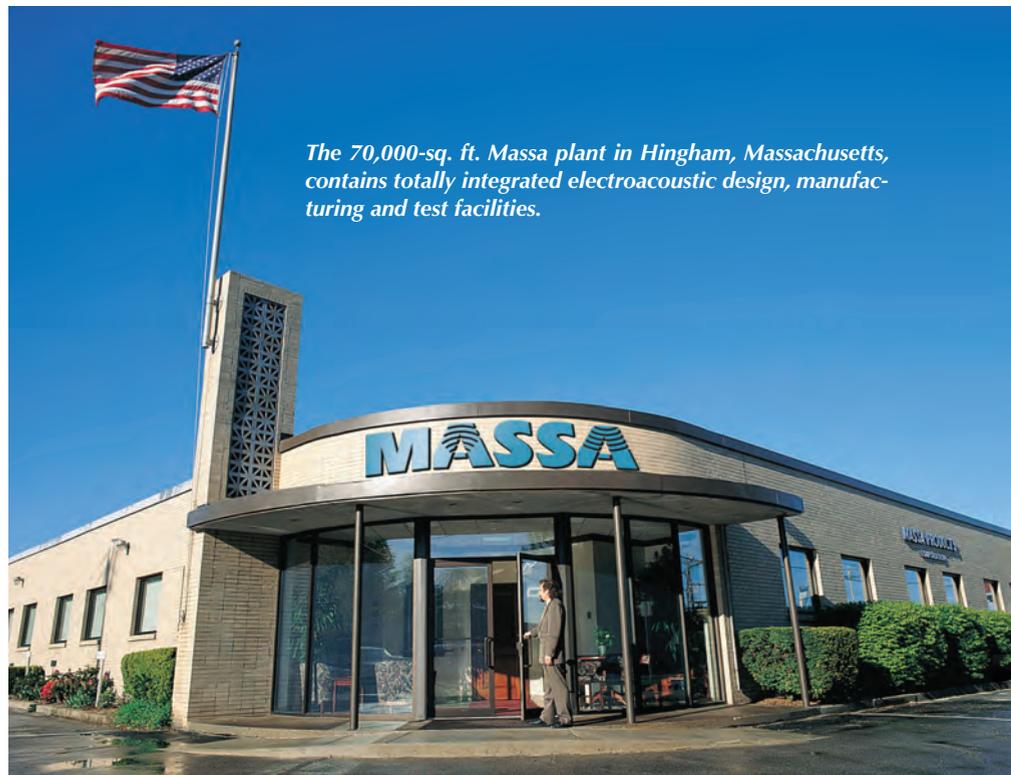
ping. In addition, it has developed hundreds of different ultrasonic transducers and systems that operate in air for use in the industrial marketplace and has mass produced millions for numerous OEM customers.

They are used in a variety of industries, including non-contact level and distance measurement, remote control, intrusion alarms, collision avoidance, and flow meters.

Massa is one of the only companies today that designs and manufactures sonar and ultrasonic transducers and systems for both the military and private sectors.

The strong in-house collaboration between production engineering and design engineering, originally established by Frank Massa, still exists from concept to finished goods.

An emphasis upon quality, reliability and value are what allow Massa to maintain an edge in the marketplace.



*The 70,000-sq. ft. Massa plant in Hingham, Massachusetts, contains totally integrated electroacoustic design, manufacturing and test facilities.*

## The American Dream

The history of Massa begins with the story of a man, his family and a story of love.

Frank Massa was born in 1906 as the eldest of an Italian immigrant family in Boston's North End. He learned English in grade school, and his grandmother saved \$100 in dimes for his college education. Hard work and learning are among the highest of Massa values and continue to remain as such today. Frank honored these values in all he did and earned a full scholarship to MIT, where he received his B.S. in electrical engineering in 1927. Upon graduation he was honored as a Swope Fellow and earned his M.S. in electrical engineering in 1928 under this scholarship. During his time at MIT, Frank made some connections in his studies and his friendships that would become integral components to his life and career. His best friends were the legendary Harold "Doc" Edgerton and world renowned photographer Gjon Mili. Edgerton would later serve on the board of directors of Massa, and Mili would later use the strobe light invented by Edgerton in his photography for *LIFE Magazine*. Mili also shot Frank's wedding photos.

Frank's career after MIT began at Victor Talking Machine, which soon merged with RCA. His work spanned from his first job of developing a motor to replace the hand crank on the Victrola record player to the advancement and development of various loudspeakers, horns, microphones, test equipment, and amplifiers. He even worked on providing sound to the motion picture industry during the Great Depression, when silent films were being replaced by "talkies". It was an exciting time for science in American history, and it was here that his love of innovation matured. It was also during his time at RCA Victor that he discovered the love of his life and future wife, Georgiana Galbraith.

When Frank met Georgiana, she held a prestigious position for a young woman in the early 1930s. She was the personal secretary for Dr. Vladimir Zworykin, who invented the iconoscope and is known as the father of television, and she also was the secretary for the Acoustic Research Department at RCA Victor. Frank got to know Georgiana while collaborating with Harry Olson on a number of inventions. One of these collaborations resulted in perfecting the design of the ribbon microphone, which would soon serve as the iconic emblem for NBC. Georgiana typed the manuscript of "Applied Acoustics" by Olson and Massa, published in 1934, which was the first textbook ever written for electroacoustic engineering.

In the mid-1930s, Frank was promoted to be the head of RCA Victor's government sound division. It was during the five years he spent in this position that he learned the values of production engineering, which became the backbone of Massa Products Corp. He developed many products, such as the shipboard sound-powered telephone, which used the energy of sound to power the system without external DC power. This replaced the need to speak through brass tubes to communicate with other areas of the ship. Because of the growth of the government sound business, RCA Victor chose to move this division to a larger facility in western Pennsylvania. Frank decided if he had to go west, he may as well go to Brush Development, Co. in Cleveland, Ohio, where he accepted the position of director of engineering. The primary business of Brush was the manufacture of pho-



*(Top) One of Massa's many production lines. (Bottom) Don Massa, CTO and president, and Dawn F. Massa Stancavish, new products manager, with a portrait of Frank Massa, founder, in the background, showing three generations of the family.*

nograph pickups using Rochelle salt crystal bimorphs. To expand the product line, Frank developed new speakers for car radios using Rochelle salt crystals, instead of magnets, for transduction. Simultaneously, World War II loomed on the horizon. Our allies were becoming more and more immersed in the war effort, and the U.S. began its own preparations. To win the war, it was essential for the U.S. to send convoys of ships to supply Britain, but the wolf packs of Nazi submarines were sinking them at an alarming rate. To stop the wolf packs, the U.S. Navy asked Frank to turn his electroacoustic design and production expertise from air to water to improve the relatively primitive state of its sonar.

For the duration of the war, Frank developed and placed into production numerous new sonar transducer concepts that significantly improved the U.S. Navy's sonar capabilities and helped defeat the wolf pack threat. In fact, in the 1950s, Frank received a letter from the Secretary of the U.S. Navy crediting his personal achievements in transducer development as being a significant factor in the Allies winning WWII.

Following the end of the war, Frank left Brush and, with the assistance of his wife, Georgiana, founded Massa Laboratories, the predecessor of Massa Products Corp., in Cleveland, Ohio, in 1945. In 1950, Frank moved the business, along with his wife and five children, to Hingham, Massachusetts, where the Massa facility remains today.

## The Legacy Continues

Out of all of Frank's talented children, there were two that shared his love of technical innovation and invention and pursued careers as engineers. Frank Jr. (deceased) and Don added their developments to the growing technology platform of the company. At the Hingham location, Massa had many successes.

A notable example is Artemis, developed in the 1960s, which is the largest sonar transducer ever built. It was 33 by 50 feet, weighed 300,000 lb. and produced a megawatt of sound in the 450-Hz frequency region. Artemis was developed through a collaboration between Frank and Frank Jr. and was written about in both *TIME Magazine* and *Sea Technology*. A few years later, Frank Jr. became president. After his tenure, Don Massa became president in 1976.

Much of Don's design and administrative efforts were focused on expanding the commercial product section of the business, such as his development of the automatic ultrasonic scoring system for bowling. This was produced for AMF, and more than 25,000 bowling alleys were outfitted. Under his leadership, Massa continues to develop and produce new products in both the commercial and military markets.

As another example, Don collaborated with Professor Joseph Ayers of Northeastern University to develop a biomimetic underwater robot based on the American lobster, called "Robo-Lobster", which was praised by *TIME Magazine* (November 17, 2003) as "one of the coolest inventions of 2003".

Massa presently has a 60:40 ratio of military to industrial/commercial business and continues to grow both sec-

tors. Today, Dawn F. Massa Stancavish (grand-daughter to Frank and daughter to Don) is the new products manager at Massa. It is her job to work closely with Don and with Massa's sales and marketing team, led by Senior Executive Vice President Paul Hellar, to actively track potential new markets and customers. Dawn collaborates with Massa's engineering and sales departments to bring new products to fruition. She manages the programs for all new and modified products that Massa pursues for its own product line, as well as for customers who have asked Massa to find a solution to their problem with a Massa design. She serves as the primary point of contact for customers who are interested in Massa's capabilities.

Massa has a fully integrated ISO 9001:2008-certified 70,000-sq. ft. electroacoustic design, manufacturing and test facility. The Massa plant contains an engineering laboratory, manufacturing facilities, an engineering model shop, rubber vulcanizing and plastic molding facilities, a machine shop, a clean/humidity controlled area, hydrostatic pressure-testing facilities, an underwater acoustic test facility, and sales, marketing and administrative offices. Massa is fully equipped and staffed to design and manufacture electroacoustic transducers and systems for all applications.

The vibrant sound waves that carry Massa from the past to the present and into the future are an amazing ride. Never oscillated by changes in the world, Massa's capabilities, fundamentals and philosophy serve as a sturdy vehicle in which Massa will continue not only to ride the waves but to command them. In the seas and in the air, Massa is able to see, hear and navigate through the sounds of time. **ST**

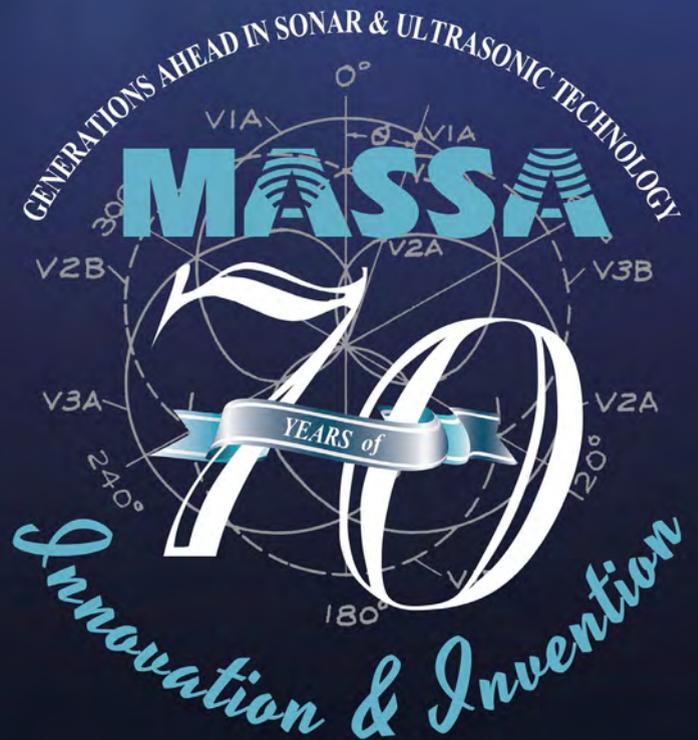
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