

He Sparked Supersonic Flight With a Coke Bottle and File

BY STEPHEN MILLER

Richard T. Whitcomb dreamed up techniques that made supersonic flight possible and innovations that endure on passenger jets today.

Mr. Whitcomb, who died Oct. 13 at age 88, solved a problem that had bedeviled aviation engineers, whose designs couldn't achieve supersonic flight even though they seemed to have enough power. Increased wind resistance at speeds approaching the speed of sound was the problem. Engineers took to calling it the "sound barrier."

Mr. Whitcomb's solution was to taper the airplane's fuselage in a manner he often likened to a Coke bottle, which dramatically reduced drag. Within three years of Mr. Whitcomb's discovery in 1951, U.S. Air Force interceptors were flying at supersonic speeds.

It was the first of three revolutionary advances Mr. Whitcomb designed. Another was a new and more efficient wing shape used today on nearly all passenger jets. And he designed "winglets"—small drag-reducing vertical panels found at the wingtips of many commercial jets.

"I think he was the most significant aeronautical engineer operating in the second half of 20th century," says Tom Crouch, a curator at the Smithsonian National Air and Space Museum. "His fingerprints are on every jet plane flying today."

Mr. Whitcomb made his discoveries as a government engineer at the Langley Research Center in Hampton, Va., which had developed state-of-the-art wind tunnels where he could test his ideas in supersonic winds. He would spend hours at his desk chain-smoking.

In the 1960s Mr. Whitcomb developed the specially shaped wing known as the supercritical wing, an improved design that increases fuel efficiency at near-supersonic speeds. He filed down the model edges, flattening the top of the wing and rounding the bottom to find the optimal shape. He had a reputation for being able to visualize airflow.

During round-the-clock wind-tunnel testing, he lived in the laboratory and slept on a cot. Although he never married, he would sometimes emerge from



marathon sessions for Sunday dinner with family who lived nearby. "Uncle Dick rarely showered," recalled a nephew, David Whitcomb.

Richard Whitcomb inaugurated himself as an aeronautical engineer at age 12, commandeering the basement of his parents' home in Worcester, Mass., as a workshop where he sought to improve common model planes.

"There's been a continual drive in me ever since I was a teenager to find a better way to do everything," Mr. Whitcomb told the Washington Post in 1969. But it was the technical problems involved and not flying himself that interested him.

"It had nothing to do with Lindbergh or anything like that," he said. "It was just the fascination of making a model that would fly."

Mr. Whitcomb said his first innovation was a method of doubling the power available from the rubber bands that powered his early models. After studying at the Worcester Polytechnic Institute, he went to work at Langley, in 1943, where he quickly acquired a reputation as a wunderkind, according to a National Aeronautics and Space Administration history of the lab.

When he had the idea for the

Coke bottle-style fuselage, "It was like a bulb lighting up but it wasn't out of the blue," Mr. Whitcomb said in the Washington Post interview. Others at Langley had been working on the same problem.

His method for sculpting a plane to reduce drag became known as "Whitcomb area rule" and was kept secret at first. After it was made public, he won the 1954 Collier Trophy, awarded by the National Aeronautics Association for "basic knowledge yielding significantly higher airplane speed and greater range."

In 1973, President Richard Nixon conferred the National Medal of Science on Mr. Whitcomb. His secretary had to remind him to buy black shoes to wear with his tuxedo, and he forgot his suspenders, so he met the president with his shirt pinned to his pants.

Mr. Whitcomb retired in 1980. He worked as a consultant to the aviation industry as well as for yacht designers, whose innovative keels borrowed winglets in the 1980s.

Although he did much to define modern flight, Mr. Whitcomb never learned to fly.

Email remembrances@wsj.com