

## **The DEVELOPMENT of the HELICOPTER** (Sikorsky's Role in its Development)

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Igor Sikorsky was born in Kiev, Ukraine on May 25, 1889, and among his earliest memories was his mother describing Leonardo's designs for flying machines. As a young man Sikorsky had built two helicopter prototypes, in 1909 and 1910. Neither one had made it off the ground.

### **The Early Experiments**

He experimented by mounting engines and propellers on two sleighs and driving them across snow. In April 1910 he rolled out his S-1, a simple biplane powered by a 15-hp Anzani engine. The plane taxied nicely and even jumped into the air for a few seconds with the help of a strong gust of wind, but it lacked the power for true flight. Sikorsky worked on his next model, the S-2, with a 25-hp engine had just enough power to get airborne. In the spring of 1911, he piloted the S-5 on a thrilling four-minute flight along a circular course.

### **The S-6**

Before long he had built a three-seater biplane, the S-6, that flew at more than seventy miles per hour, breaking the world speed record for an airplane carrying a pilot and two passengers. In 1912 an improved version of that plane, the S-6-B, won first prize at a Moscow air exposition.

Sikorsky set out to build a large plane, the world's first four-engine aircraft *Le Grand*, as it became known, looked a bit like a trolley car with an eighty-eight-foot wingspan. In May 1913 Sikorsky, with a copilot and a flight mechanic, took the four-and-a-half-ton plane over St. Petersburg, navigating by the glow of northern Russia's famous "white nights." To prove its utility for long-distance transport, Sikorsky and a three-man crew flew a second version of the *Il'ya Muromets* seven hundred miles cross-country from St. Petersburg to Kiev in 1914.

### **The Russian Revolution**

This phase of his aviation career came to an abrupt end in 1917, when Czar Nicholas was ousted and Sikorsky decided he would be wise to flee the country. In February 1918, he traveled to France, where the French Air Force hired him to design a large bomber but the war ended before construction could begin so he boarded a steamer for America in March 1919. "The United States seemed to be the only place that offered a real opportunity".

## **Coming to America**

In May 1927, Charles Lindbergh flew solo from Long Island to Paris in a single-engine plane called *The Spirit of St. Louis*. This helped Sikorsky because the excitement gave commercial aviation a much needed boost. Sikorsky embarked on the construction of a batch of six 8-passenger twin-engine amphibious planes known as the S-36. Their chief advantage was that they could land on any decent stretch of calm water.

The S-38, an improved version of the S-36, was completed in 1928 and proved to be Sikorsky's long-awaited breakthrough, the amphibian performed superbly. The first ten S-38s sold quickly and to keep up with the orders, the company relocated to a modern factory.

## **Pan American Airways**

Pan American Airways bought thirty-eight of the S-38 amphibians and they collaborated on the mammoth S-40, which the airline needed for the expansion of its Latin American air routes. When completed in 1931, the S-40 carried up to forty passengers and weighed seventeen tons fully loaded. A still-larger plane, the S-42, was unveiled in 1934; it broke ten world records and was the first airplane to cross the Pacific,

## **The Helicopter Years**

In 1931 he applied for a helicopter design patent and it was granted in 1935. By 1939, Sikorsky plunged into his new endeavor with youthful enthusiasm. "It was a wonderful chance to relive one's own life," he said, "to design and construct a new type of flying machine without really knowing how to do it, and then climb into the pilot's seat and try to fly it without ever having flown a helicopter before."

Sikorsky made the first test flight of the VS-300 on September 14, 1939 and logged about ten seconds of flying time while tethered to heavy weights. Within a few months it could stay in the air for a minute or two at a time, hovering in place or moving slowly forward. This version of the VS-300 made its first un-tethered flights in the spring of 1940, and soon afterward Sikorsky was able to pilot the craft through precision maneuvers. Sikorsky tried some changes and when US Army saw the progress made, they became interested. In July 1940, Captain Gregory, an Air Corps pilot, tried out the VS-300 and it impressed him enough to recommend it to the Army.

## **The World War II**

By the end of World War II Sikorsky Aviation had turned out more than four hundred R-4, R-5, and R-6 helicopters. The machine proved itself in March 1944, when Lt. Carter

Harman, an Army pilot, flew a Sikorsky R-4 behind enemy lines to rescue an American pilot and three wounded British soldiers in a Burmese rice paddy..

### **Helicopter Use**

Helicopters have played key combat roles in conflicts from the Vietnam War, Operation Desert Storm and Iraq. It has proved to be practical for purposes as aerial rescue and observation, the rapid transport of trauma victims, and getting people and materials to and from places inaccessible to airplanes and ground vehicles.