

New England Air Museum's refurbished Sikorsky S-51, Serial Number 5119. Manufactured in 1947, the helicopter, designated 9602, was the second S-51/H-5 purchased for the Royal Canadian Air Force.
Jeff Evans Collection Photo



COMMERCIAL VENTURES

SIKORSKY'S FIRST COMMERCIAL HELICOPTER WASN'T THE BIG SELLER THE COMPANY HOPED IT WOULD BE, BUT THE MODEL WAS A SUCCESS STORY NONETHELESS.

by Bob Petite

Sikorsky Aircraft's first commercial helicopter, the four-place S-51, was based on the military, two-place R-5, of which 65 were built and delivered to U.S. forces by the end of the Second World War. The XR-5, as it was originally known, first flew on Aug. 18, 1943, and was the largest helicopter then attempted on a production basis.

With the abrupt end to military helicopter production at the end of the war, Igor Sikorsky decided to keep his helicopter people and organization together by developing the S-51 for limited commercial production. With the basic R-5 design already tested by the United States military, Sikorsky's engineers believed the newly modified and improved aircraft would be the answer to the increased demand for helicopter transportation and commercial use

they predicted would arrive in the near future.

Indeed, the S-51 — successor to the long line of Sikorsky military models (including the R-4 and R-6) that were proved by more than 70,000 hours of flight time — combined the utmost in control and maneuverability for a four-place, light helicopter at the time. And while this offspring of the military R-5 was destined to become an important part of the new commercial helicopter industry, it just wasn't to the extent Sikorsky had envisioned.

INITIAL PROMISE

The first flight of the S-51 occurred on Feb. 16, 1946, at Sikorsky's Bridgeport, Conn., facility. This single-engine helicopter could accommodate a pilot and three passen-

gers, although a dual-flight-control version was also an option. The three-bladed main rotor and the smaller three-bladed tail rotor obtained power from a Pratt & Whitney Wasp Junior R-985-B4, 450-horsepower radial engine. There were two 50-US-gallon fuel tanks in the center section. Fuel consumption in cruise flight was about 28 gallons an hour.

The gross weight of the S-51 was originally just under 5,000 pounds, giving it a useful load of around 1,200 pounds. The gross weight was later increased to 5,300 pounds (5,500 pounds in some configurations). The S-51's top speed at sea level was 103 miles an hour (approximately 90 knots), while the cruise speed was 85 miles an hour. The service ceiling of the S-51 was over 14,000 feet.

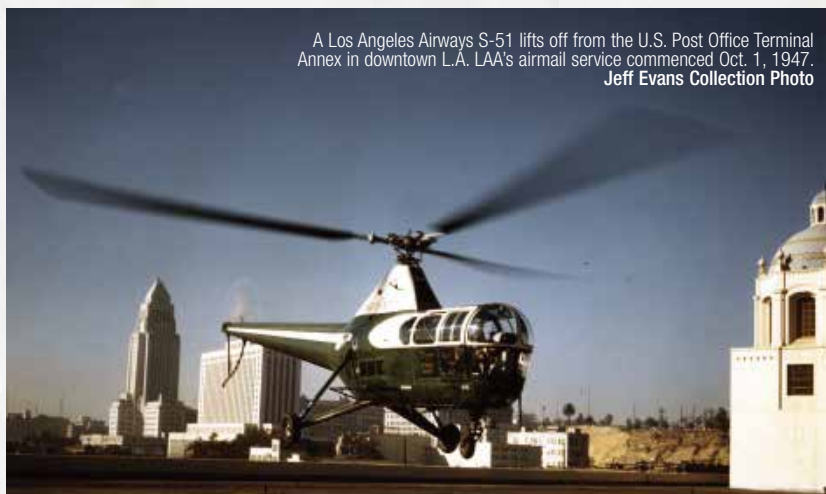
E.E. (Tug) Gustafson was Sikorsky's first civilian helicopter salesperson; he was hired by the division's general manager, pioneering aviator Bernard Whelan (who was taught to fly by the Wright brothers). Gustafson went to Washington, D.C., to try to sell the new S-51 — which was priced at \$48,500 US (about twice the cost of a Bell 47 or Hiller 360) — to various government agencies, including the U.S. Department of Agriculture (USDA) and U.S. Forest Service (USFS). Enthusiasm was high: the USFS indicated it would buy 500 units, and the USDA, 200. Gustafson returned to Bridgeport and said the helicopter would sell by the thousands.

U.S. Civil Aeronautics Administration type certificate tests, which were flown by chief pilot Dimitry (Jimmy) Viner (Igor Sikorsky's nephew), took place in the spring of 1946 amidst an unofficial competition between Bell Aircraft and Sikorsky to certify the very first commercial helicopter in the world. Sikorsky obtained a temporary approved type certificate on March 26, 1946, but Type Certificate H-1 went to Bell and the Model 47 on May 8, 1946 (see p.124, *Vertical*, Apr-May 2010). Sikorsky didn't receive its final approval, Type Certificate H-2, until April 17, 1947.

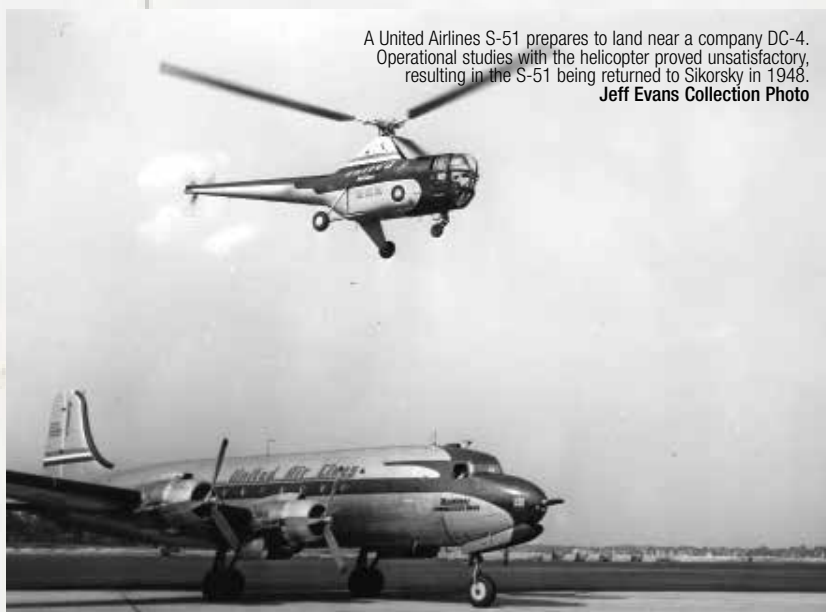
Undeterred, Sikorsky went about demonstrating the S-51 throughout the spring and summer of 1946 to a variety of potential civilian and military customers. And, it played the publicity angle, too, including organizing a race between its helicopter, a car, a train and an airplane to see which could get from its plant in Bridgeport, to the front lawn of Sikorsky's parent company, United Aircraft Corp., in East Hartford, Conn. — a distance of some 50 air miles — the fastest. It took the helicopter only 31 minutes. It took the plane even less, but with the added driving time it ended up as 48 minutes. The automobile took 95 minutes (although the driver was delayed when she was pulled over for speeding). The train (with its schedule delays and associated driving time) was last, taking 122 minutes. All in all, it was a compelling demonstration of the helicopter's potential for efficient commercial transportation.

GOING INTO SERVICE

Helicopter Air Transport Inc. (HAT), headquartered in Philadelphia, Pa (but with its base of operations in Camden, N.J.), was the first to purchase an S-51; it had also been the first to purchase a Bell 47. HAT was in the



A Los Angeles Airways S-51 lifts off from the U.S. Post Office Terminal Annex in downtown L.A. LAA's airmail service commenced Oct. 1, 1947. Jeff Evans Collection Photo



A United Airlines S-51 prepares to land near a company DC-4. Operational studies with the helicopter proved unsatisfactory, resulting in the S-51 being returned to Sikorsky in 1948. Jeff Evans Collection Photo

charter business, carrying out air taxi service, powerline patrol, package delivery service, crop dusting, aerial photography, rescue operations, passenger travel, oil and gas surveys, and experimental airmail delivery. It also had a commercial helicopter pilot training school and a mechanic training school. Unfortunately, the company ran into financial problems and filed for bankruptcy on Oct. 21, 1947. The three S-51s it had ordered in all were taken back by Sikorsky and re-sold to civilian and military interests.

Around the same time as HAT got its S-51s, Greyhound Skyways, a subsidiary of Greyhound Lines, purchased two of its own, wanting to evaluate their use in conjunction with its bus routes. Soon after, however, the idea was deemed unfeasible — especially due to the high operating costs of the S-51 — and the helicopters were sent back to Sikorsky.

In December 1946, United Airlines placed an order for a single S-51 to be used in its airline operational studies. Unfortunately, these tests were also unsuccessful and saw the helicopter sold back to Sikorsky.

In January 1947, Sikorsky had its most successful S-51

The public gets the opportunity to view Greyhound Skyways' new S-51 up close. Greyhound originally planned to use the helicopters with its bus routes. **Jeff Evans Collection Photo**



LAA S-51 Serial Number 5139 is shown on display at the Frank G. Tallman/Movieland of the Air Museum at the Orange County, Calif., airport in the mid-1960s. **Jeff Evans Photo**

deal: a license agreement with Westland Aircraft in England to build the model there. Five helicopters were ordered for use as production line models and future experimental flight aircraft. (Three of these were later bought by British European Airways for its Helicopter Experimental Unit and in 1950 were used to start the first regular helicopter passenger service in the world; see p.124, *Vertical*, June-July 2010.)

In February 1947, the Argentine government ordered 15 S-51s, for search and rescue, and dusting and spraying operations. The Royal Canadian Air Force, meanwhile, purchased seven S-51s later that year, for training and search and rescue duties.

Los Angeles Airways (LAA) was next up, eventually purchasing six S-51s in all for its airmail and small-package delivery service. LAA commenced the first recognized helicopter airmail service in the world on Oct. 1, 1947, with two S-51s. By the fall of 1948, it had five operating in a 70-mile radius of the Los Angeles (International) Airport, and continued with the S-51 until larger Sikorskys, like the S-55, became available.

Finally, the Canadian Department of Transport (now

Transport Canada) purchased one S-51 in 1950, for transportation and ice reconnaissance duties in the Far North. The helicopter was lost in an accident during an early mission, but not before pioneering the use of helicopters flying from Canadian Coast Guard ships.

Despite these early orders, and the industry firsts they created, the "thousands" of sales Sikorsky had projected did not materialize — in large part due to the model's comparatively high purchase price and operating cost. In the end, only about 53 were sold commercially.

A RETURN TO ITS ROOTS

Even though the S-51 didn't turn out to be the commercial success Sikorsky had hoped for, it did garner military success: the U.S. purchased some 167 modified S-51s. Sixty-six or so were bought by the U.S. Army Air Forces (now U.S. Air Force) and were designated as the R-5F/ H-5F. Ninety-two or so went to the U.S. Navy and Marine Corps, as the HO3S-1. And, about nine were sold to the U.S. Coast Guard, as the HO3S-1G. Ironically, many of these units ended up on the U.S. civil register when the military disposed of them in later years.

In all, Sikorsky manufactured approximately 220 S-51s between 1946 and 1951, although production lists vary. Westland produced another 130 or so.

Some 20 years after it first flew, Sikorsky still had a civil S-51 on hand when pioneer helicopter pilot Harold Symes became a company test pilot in 1965. (Symes' helicopter experience dates back to 1947, when he flew Bell 47s with Bell Aircraft and UH-12/360s with United Helicopters/ Hiller Helicopters.) "The S-51 was Sikorsky's corporate helicopter during the 1960s," Symes recalled in an interview I did with him earlier this year. "Company pilot Bob Decker checked me out on the S-51. I was the main pilot they called upon when VIP flights were required, even when carrying out my test flying duties at Sikorsky. I flew the corporate S-51 about 90 percent of the time up to 1970, when I left Sikorsky."

Asked about its flight characteristics, Symes said: "The S-51 was easy to fly, hover and land on the tricycle gear. I never had an engine problem in the six years that I flew the S-51 helicopter. I recall that turbulent air used to cause the main rotor blades to get out of sync. Overall, [though,] the S-51 was a reliable helicopter for Sikorsky's first post-war commercial aircraft."

While the follow-up S-55 was far more successful, the S-51 did help build the helicopter industry in many respects — but, more importantly, it kept Sikorsky firmly in the business of helicopters and showed it where its strengths lay.

Bob Petite is an air attack officer with the Alberta Forest Protection Division. He has over 40 years of experience working on wildfires both on the ground and in the air, utilizing air tankers and helicopters.

