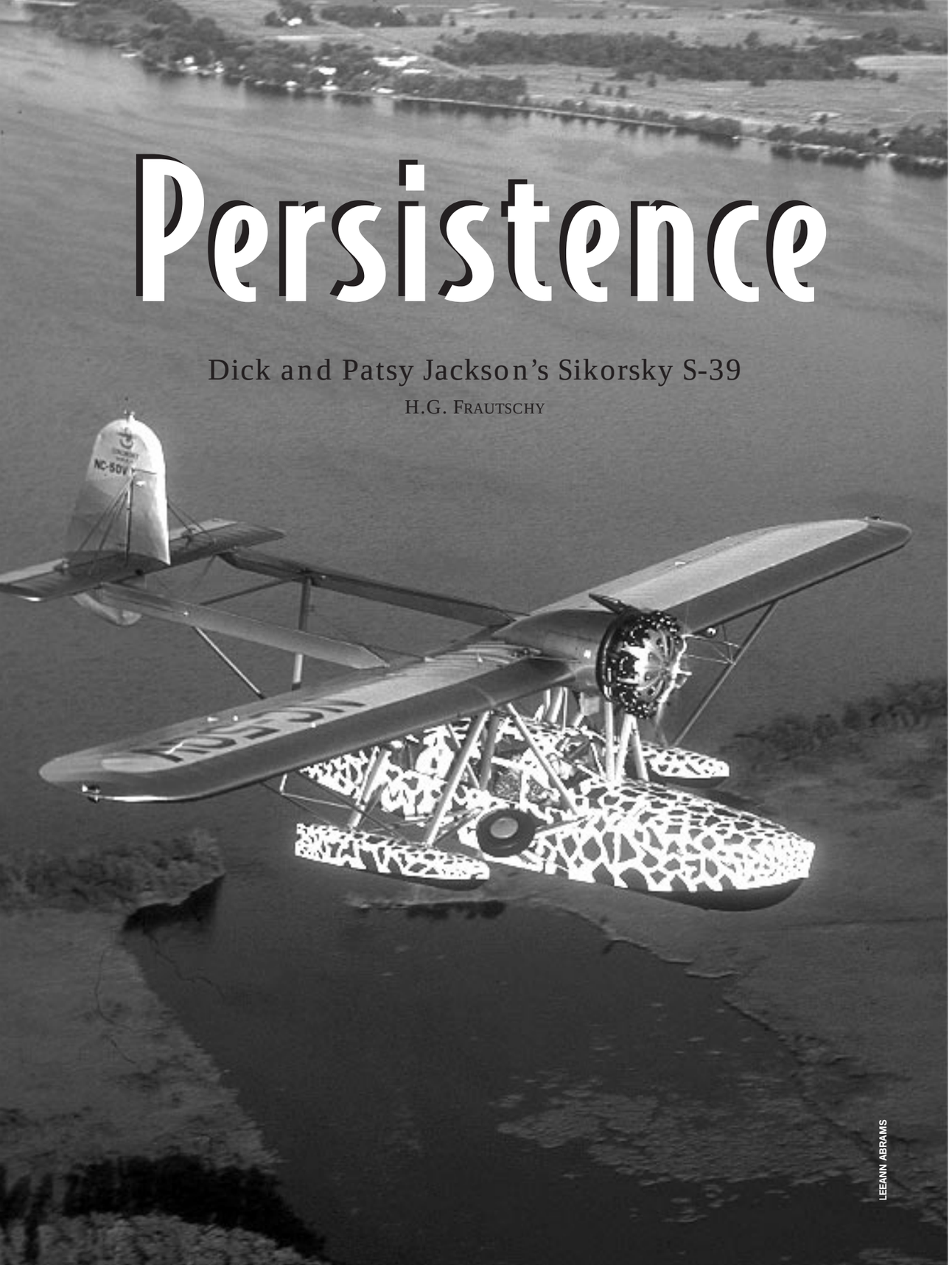
Persistence

Dick and Patsy Jackson's Sikorsky S-39

H.G. Frautschy



LEEANN ABRAMS

For many pilots who flew the S-39, it became a favorite, and one they'd remember for the rest of their lives. For others, it would become an aeronautical holy grail.

Vintage airplanes are remarkable machines. When you think about their longevity, and the fact that so many of them can be rebuilt with not much more than average craftsmanship and a few special tools, it's no wonder that roughly half of all airplanes built since World War II are still flying.

But there are exceptions. Many of the airplanes built before WWII did not survive the scrap drives of that time, or they were tossed into the dump. And some, despite being built robustly, were "ridden hard and put away wet." They were tools to be used and discarded when worn out, and not a second thought was given to them by some who flew and owned them.

The Sikorsky S-39 was one of those tools, but it was a stubborn machine. At first glance it looks ungainly, but a more careful review of the structure and intended mission for the airplane gives you a real appreciation for Igor Sikorsky's vision of what an amphibious airplane could do. It could go just about any place a person wanted to be on this Earth, from the Tropics to the Arctic, on a windswept

SIKORSKY AMPHIBION

African plain or a beautiful blue-green inland lake teeming with pike and trout.

It was a remarkable aircraft, the "little brother" to the larger twin-engine Sikorsky S-38, which was being used all over the globe to explore and survey. The S-39 was to be the well-heeled sportsman's personal mount or the convenient chariot for a champion of industry, an airplane he could take where he wanted. A person could handle and dock the airplane alone if need be, and it wouldn't need as much fuel as the S-38.

The S-39 proved to be rugged, even more so than most seaplanes. Not many were built; besides the two prototypes, a total of 21 airplanes of the S-39-A, S-39-B, and the final variant, the S-39-C, were constructed, but many went on to serve for more than a decade, and a few even longer than that, soldiering on into the postwar years. During the war they served on search and rescue missions and as bushplanes, hauling in whatever was needed.

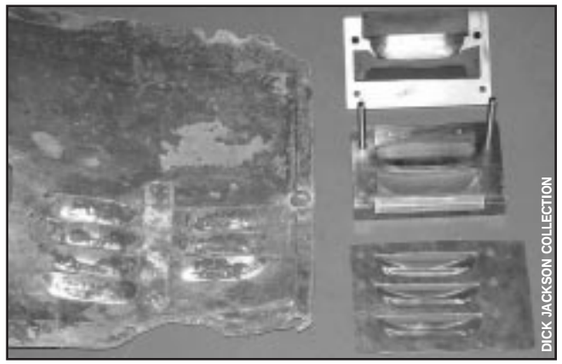
When first designed by Sikorsky, the S-39 was literally a shrunk-down version of the S-38, sporting a pair of 105-115 hp Cirrus Hermes engines and a pair of outrigger-mounted rudders. It was first flown successfully on Christmas Eve 1929, but a crash on its third test flight on December 30 nearly ended the program when famed Sikorsky test pilot Boris Sergievsky and the project engineer, Mike Gluhareff, had to ride the airplane down to a marsh on Long Island Sound after one of the Cirrus Hermes decided to quit. Unable to maintain flight on the other Hermes, Sergievsky and Gluhareff managed to swim away from the ensuing wreck, but the airplane was totaled. Since his early days as a designer in Russia, Igor Sikorsky preferred multiengine aircraft. He felt that when properly designed, the loss of one engine should not result in the loss of the aircraft.

The S-39 became a single-engine aircraft after the accident with the prototype. Although Sikorsky still would have rather installed a pair of larger engines, another factor came to bear when the decision had to be made. Sikorsky Aircraft had recently become a division of the United Aircraft Corp., and United management made it known it preferred the airplane be powered by another United Aircraft product, an engine built by the Pratt & Whitney company. A single 300-hp P&W Wasp Junior was mated to the S-39 airframe. It could even be argued that it enhanced safety, since it was unlikely that a twin-engine version with lower horsepower engines would have been able to maintain flight with one engine.

The S-39 isn't written of very often, since its design and production was taking place at the same time


DICK JACKSON COLLECTION

The fuselage hull and wing bits and pieces for S-39 N50V, S/N 912, lies in a loading area after being recovered from the Alaska bush near Naknek, Alaska. It had been stripped of just about everything usable, and was being used as a clubhouse by an 8-year-old Inuit boy and his friends. When found, it had small trees and undergrowth pushing up through the structure!


DICK JACKSON COLLECTION

Most often, each piece had to be constructed using the original parts for patterns. Here, a portion of the engine cowling is used to create a pair of dies that were used to press louvers for the cowling.

Dick Jackson, of Rochester, New Hampshire, has loved vintage airplanes all his life. He's owned a number of great ones, and still owns the rare Waco Model D, a closed-cockpit black biplane that comes straight out of the pages of 1930s pulp magazines like *Flying Aces*. He also loves seaplanes, and so in 1962 he started researching antique seaplanes. An amphibian made the most sense, since you didn't have to leave it outside all the time, and you could just taxi up to the fuel pumps. Being able to alight on both water and land gave plenty of options for places to visit, instead of being bound to only seaplane bases. For practical reasons, he ruled out wooden airframes, since they didn't hold up well over the years. That meant an all-metal airframe, and when the folder of research materials started to grow, it became obvious that the airplane he was looking for was a Sikorsky Amphibion. He soon discovered that finding one was a real challenge. None were flying, and there were few bits and pieces that could be found. Given the way the airplane was constructed, I suppose it's not surprising that the parts seemed to scatter as soon as an airplane was deemed unairworthy.

Dick Jackson's a persistent New England businessman, a characteristic that has served him well over the years while restoring the S-39. Once he decided to rebuild a Sikorsky, he was going to pick apart every lead he could uncover. His first major breakthrough came in 1964, when he asked his good friend Steve Rhodes to follow up on his research. He gave Rhodes a list of the eight S-39s thought to be in Alaska. One proved to be if not the jackpot, at least a good start.

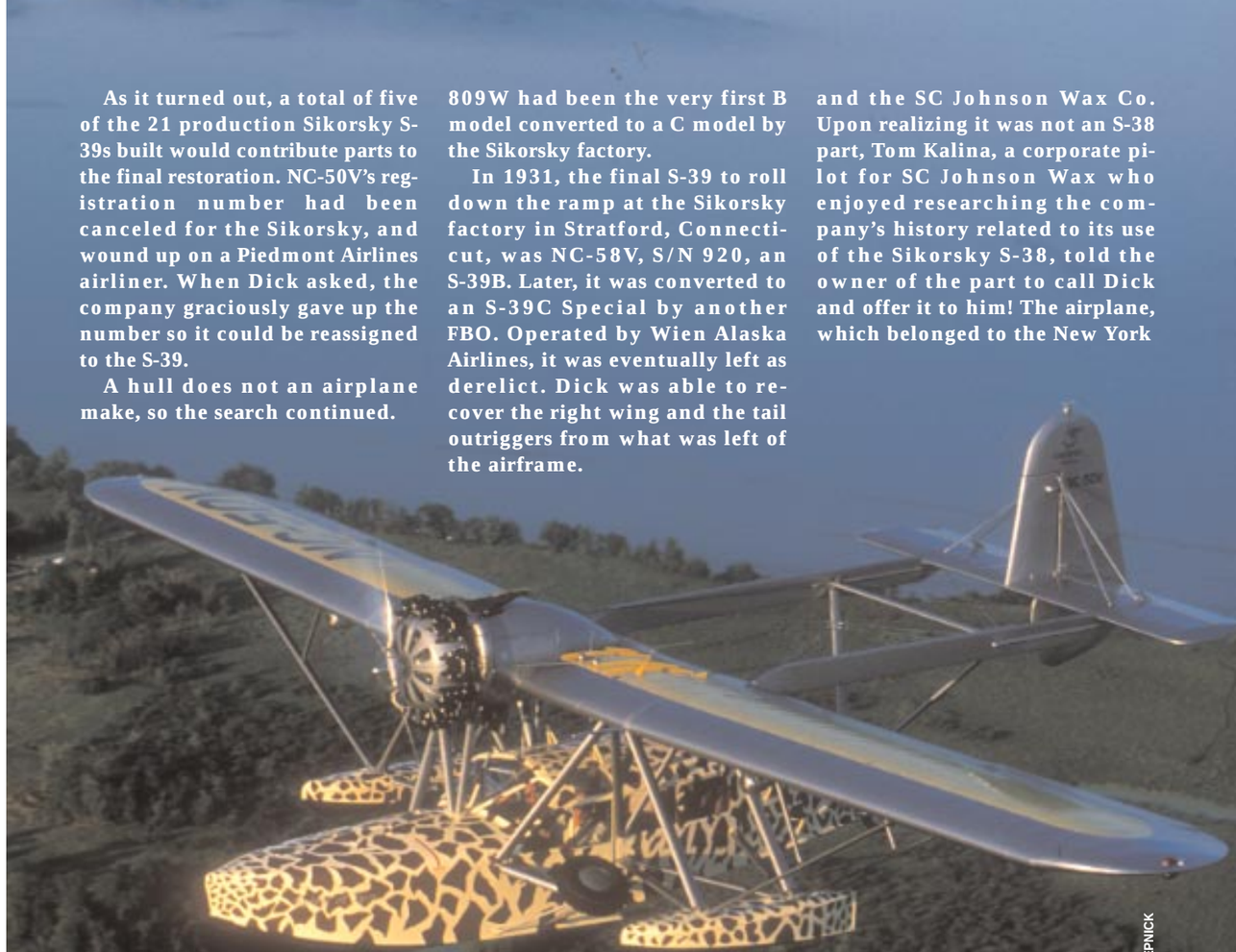
At the end of the Aleutian island chain is the small Inuit village called Naknek. There, Steve asked about the whereabouts of the remains of NC-50V, which had been rumored to have been abandoned after being damaged in 1944 or '45. No adults knew of the airplane, but an 8-year-old boy did—he and his buddies were using it as their clubhouse!

By truck to King Salmon and then by airfreight to Anchorage, it was finally shipped, dirt and all (so no little buried parts would be lost), to New Hampshire, where it arrived in 1965. Thankfully, the airframe did still have its all-important nameplate. Now Dick had a place to start, but didn't know how long the road would be. If he had, he might very well have decided the project was pure folly.


DICK JACKSON COLLECTION

Each of the tail booms was repaired and then coated with epoxy primer.

as another Sikorsky "Amphibion" (Sikorsky's coined term for his amphibious airplanes)—the four-engine airliner being designed and built for Pan American Airways, the S-40. Working closely with Pan Am consultant Charles Lindbergh, Igor Sikorsky designed the airplane to be a quantum leap from the capabilities of the S-38. The S-39 wasn't an afterthought, but understandably, it didn't get a lot of notice when compared with its much larger brethren. For many pilots who flew the S-39, it became a favorite, and one they'd remember for the rest of their lives. For others, it would become an aeronautical holy grail.


JIM KOEPNICK

As it turned out, a total of five of the 21 production Sikorsky S-39s built would contribute parts to the final restoration. NC-50V's registration number had been canceled for the Sikorsky, and wound up on a Piedmont Airlines airliner. When Dick asked, the company graciously gave up the number so it could be reassigned to the S-39.

A hull does not an airplane make, so the search continued.

NC809W, S/N 911, had crashed into the water of Two Lakes, Alaska, back in 1957 (where it remains to this day, and it's owned by Greg Herrick), but the wing center section had been replaced prior to the crash. That center section was located in Anchorage and became the basis for the restoration's center section. Finding that center section proved to be critical, as it helped allow Dick to convert his S-39B to a C model, with a 400-hp Wasp Junior installed, a higher gross weight, and all 95 gallons of fuel in four tanks mounted in the center section. (The B model had two 14-gallon fuel tanks in the forward portion of the hull, with two wing tanks mounted in the center section.)

809W had been the very first B model converted to a C model by the Sikorsky factory.

In 1931, the final S-39 to roll down the ramp at the Sikorsky factory in Stratford, Connecticut, was NC-58V, S/N 920, an S-39B. Later, it was converted to an S-39C Special by another FBO. Operated by Wien Alaska Airlines, it was eventually left as derelict. Dick was able to recover the right wing and the tail outriggers from what was left of the airframe.

NC-54V, S/N 916, was damaged beyond repair in a water landing during 1944, and Dick was able to recover the left wing and the empennage from that airplane.

The final airframe to contribute a piece that could be used as a pattern was NC14326, S-39B S/N 918 (later converted to a C). In all of their searching, Dick and Patsy had never found even a scrap of a wingtip float. Finally, in the early 1990s, by sheer luck they ran across the only tip float from an S-39 known to exist. It was in a barn near Albany, New York. It was offered to the Jacksons after a note was published in *EAA Sport Aviation* concerning the search for S-38 parts by Born Again Restorations and the SC Johnson Wax Co. Upon realizing it was not an S-38 part, Tom Kalina, a corporate pilot for SC Johnson Wax who enjoyed researching the company's history related to its use of the Sikorsky S-38, told the owner of the part to call Dick and offer it to him! The airplane, which belonged to the New York American newspaper, crashed in a field alongside the Hudson River in 1935. It was fortunate the float was found, as no blueprints existed for the part. The original item was used as a pattern. It doesn't look very big when compared with the rest of the airframe, but each float has 1,274 rivets installed!

With a pile of mostly corroded parts that could in many cases act only as patterns, it seemed to be a long shot that the entire airframe of a nearly 2,700-pound airplane could be constructed in anyone's lifetime. There was literally more than a ton of work to be done!

It might have also been tempting to cut a few corners during

DICK JACKSON COLLECTION

The completely new center section with its fabric covering applied. You can see the fuel tanks installed in the center section, which was done in the S-39C model of the airplane. Earlier versions had the fuel in tanks located in the hull.

The two long hatches and the smaller aft hatch allow you to gain access to the cabin. The aluminum vertical tube is a retractable handle that makes the climb up easier.

The large tail wheel also doubles as the water rudder.

MARK SCHAIBLE PHOTOS

The engine control quadrant, like the control wheel, is original.

From the original Sikorsky Amphibion S-39 brochure.

the restoration, but Dick was a stickler that the airplane be accurately re-created. Since he didn't have a riding lens (which serves as an "at anchor" light when the airplane is sitting in the water), Dick had a new set molded. He was also missing parts to the Pioneer position lights, so molds were made and new red and green lenses were cast.

Dick owned an original set of Pyle landing lights, which were installed on many S-39s. Years before the project was completed, smooth-talking Larry Harmacinski talked Dick into selling the Pyle lights to him for his Waco ASO project. It gets complicated after that, but later, when a complete set of Pyle lights was made available, Larry bought that set, so Dick was able to buy back the set of lights he'd sold Larry years before!

Each part of the project had its own little mountain to climb. More than half of the wing ribs in the 52-foot wing had to be built from scratch. There are 72 pieces in each rib, which meant more than 1,800 pieces were made for the wing's ribs. The center section from NC-809W proved to be unairworthy, so a new section was built. Since the unusable section was intact, it showed the technical changes needed to convert the S-39 to a C model. Dick deviated from one method of original construction—the original corrosion protection for the wings was a combination of red lead oxide primer, covered by beeswax. The areas coming in contact with fabric were dope-proofed using tin foil. For the restoration, Dick chose to use epoxy primers.

The tail section also required the manufacture of some new ribs, along with a set of spars. The rudder is an original part that could be repaired. Even the ripples in the rudder's skin surface, which were there when the airplane was built, have been maintained.

The first major piece recovered, the hull to NC-50V, was severely corroded. Three major bulkheads needed to be replaced, as well as the upper decking, hatches, and window frames. The bottom skins and the keel also had to be replaced. All of the riveting was done using the same methods craftsmen at Sikorsky had used in 1930. The upset side of the rivet was rounded, instead of flat. All of the hardware in the airframe is white cadmium plated, and all nuts that must be safetied are done so with cotter pins—no elastic stop nuts were used. All of the control cables are spliced, with no compression fittings used.

The interior is strikingly original. Since both fabric and leather upholstery samples were found from the various S-39s, Dick and Patsy chose to use leather for the seat cushions, and the interior side panels were reproduced from mahogany, using the original parts as patterns. The instrument panel is equally original, with the addition of a small panel that hides the modern switches and controls for the alternator, radios, and intercom. One of the original parts in the cockpit is the control wheel, which was disassembled and then reglued. The S-39 came equipped with a control wheel on the pilot's side, and a removable control stick on the right.

Unlike the S-38, the cockpit to the S-39 is entered through the cabin. (The S-38 must be entered through hatches on each side of the cockpit.) With two up forward in the cockpit, there's still plenty of room for two or three passengers in the aft cabin, though with three on the seat, they'd better be married or very close friends!

Above the cockpit, mounted on the wing center section, is a neatly cowled Pratt & Whitney 965-AN1, which is rated at 400 hp at 2200 rpm while pulling 34 inches of manifold pressure. (The -AN1 is the military designation for the B series of the 985.) The cowling surrounding the Wasp Junior is new and secured using pins and wires.

H.G. FRAUTSCHY

The Jacksons flew the S-39 for the entire route of the National Air Tour.

I have been lucky enough to fly the S-39 with Dick and Patsy (Thank you, Hank Jackson) on a couple of occasions, and one of the most striking aspects of flying in the S-39 is the sensation that you're suspended from the wing and the rest of the airframe. That feeling comes from seeing all the struts that make up the interconnecting structure of the S-39. All of the struts on the Jacksons' S-39 are new, and they're attached using the same system originally used by Sikorsky. Each strut end is secured using hollow steel tubular rivets, which are then filled with beeswax for corrosion protection. It took a lot of experimentation and research to duplicate the system.

The landing gear does have a modern system installed: Cleveland wheels and brakes. Originally, the majority of the S-39 braking systems were set up so that brake and rudder input could not be applied at the same time, but since NC-809W had been revised with toe brakes, Dick chose to use that configuration on NC-50V.

One of the biggest challenges after the fuselage was re-creating the landing gear. Four struts were recovered over the years, but none could be successfully rebuilt. A complete set of new struts was built, using chevron seals and the original end caps. Since the S-39s were built with varying sizes of tires, it gave Dick some latitude to choose something that would work well on grass and pavement. A set of 8.5 x 10 tires were picked and recapped to match the smooth tread from the 1930s. The tail wheel size is original and acts as the water rudder as well. The forks are original, but the spring, oleo shock absorber, and a few other parts had to be replaced.

Two other additions to the airplane were made in the interest of safety. A set of wingtip strobes help keep the Sikorsky visible in the hazy summer skies, and Dick added an oil filter to the engine's oil system.

Once it took to the air, Sikorsky S-39 NC-50V became the oldest flying Sikorsky aircraft in the world. A second unairworthy S-39 has been restored and placed on exhibit at the New England Air Museum in Windsor Locks, Connecticut.

JIM KOEPNICK

DICK JACKSON COLLECTION

Dick and Patsy Jackson toast the restoration crew present after the wings and engine are hung. By golly, now it's beginning to look like an Amphibion!

The fabric covering is Ceconite, with dope finish. Dick and his helpers mixed their own silver dope, working to get just the right amount of color. The Sikorskys did not have a lot of dope applied to the fabric, so Dick and his helpers did their best to keep the finish to a minimum. The yellow inlay on the top of the wing is exactly per the Sikorsky finish specification, and it matches a sample that came with the parts from NC-54V.

But what about that fuselage? In the 1930s Martin and Osa Johnson traversed Africa shooting documentary films. They used a pair of Sikorskys, a zebra-striped S-38 they dubbed *Osa's Ark* and an S-39 they called the *Spirit of Africa*. To honor both the memories of the Johnsons and of the designer of the aircraft, Dick and Pat chose to name their S-39 *The Spirit of Igor* and paint it in the same giraffe motif as the Johnsons used on theirs. A black and white photo was projected onto the hull of the S-39, and each spot carefully masked off. During their research, Dick and Pat were amazed at the number of different types of giraffe that exist in the wild—there are nine different marking sets for the giraffe.

MARK SCHAIBLE PHOTOS

Friends have added to the collection of the Jacksons' giraffe motif collection of cabin pillows. Both cloth and leather seat cushions were used on the 21 S-39s built—the Jacksons chose leather.

Two forward and two or three aft is the seating arrangement of the S-39.

So how long did it take? Well, over the years, whenever somebody asked Dick when the big Amphibion would be finished, his reply was always the same.

"Thursday."

Over the 40 years it took to collect and restore the S-39, 2,080 Thurdays went by, with a couple of years taken off in the middle of the restoration. And over those decades 40,000 man-hours of work went into the project. Dick estimates that over the years, Patsy made thousands of lunches for the volunteers.

The restoration took more than half of Dick's lifetime, and he had some great helpers along the way. In the beginning he had Lockhart "Smitty" Smith, Chickie Mattocks, and others who are no longer with us, including Steve Rhodes, Phil Redden, Lyman Rice, Norman Wallace, Stillman Worcester, and Bill Beck. Since the final eight-year push to complete the restoration began in 1995, the core of the hands-on effort was supported by John LaChance, Frank Stephens, Hank Jackson, Barry Jameson, Bill Thaden, Phil Sawyer, Dwight Horne, and Arthur Shute. Through it all, Patsy Jackson was there as well, supporting her husband to realize a dream that took an enormous amount of dedication.

Persistence. That's what it took. Heaps of persistence. Always keeping the goal in sight, and never forgetting how much it meant to have friends who were always there to help. Do you think Dick Jackson remembers all that was given to him by friends and family along the way during those 40 years? Just look in his eyes when he talks about their contributions.

He knows, and he's eternally grateful.