The Schweizer SGS 1-21 was originally offered to the U.S. soaring community in late 1946 as a high performance single seat sailplane. With a glide ratio of over 27 to 1, provisions for carrying water ballast in wing tanks (a first for a production sailplane in the U.S.) and an expected selling price of $2,700.00, the 1-21 was seen by Schweizer as an answer to a perceived demand for a competitive, all metal sport sailplane. Alas, orders for the design proved rather short with only two being placed. Schweizer decided to proceed and build these two in the hope that “seeing was believing” and further orders would transpire. Sadly this did not prove out and even though the SGS 1-21 proved its competitiveness at the 1947 Soaring Nationals and beyond, nothing more came of it. The cost of the sailplane was simply too much for a post war economy filled with surplus military sailplanes and the relatively small size of the soaring community that existed at that time.

SGS 1-21 (S/N 1) won the U.S. Nationals in 1947 flown by Dick Comey, and amazingly 10 years later won the U.S. Nationals yet again when flown by Stan Smith. SGS 1-21 (S/N 2) also had a significant competitive history after a late start. Bob Moore of Richland, Washington, flew it to a 5th place finish in the 1958 U.S. Nationals held in Bishop, California. Bob subsequently flew it to other top 10 finishes in later Nationals, concluding with a 15th place finish in the 1963 U.S. Nationals held in Kansas. Bob, considered the most famous owner/pilot of S/N 2, at one time or another held most of the Washington State soaring records flying S/N 2. Its performance handily exceeded the requirements needed to attain the FAI Diamond “C” Award and the S/N 2 logbook shows altitudes of 35,000 feet, distances up to 340 miles and flight durations up to 8.5 hours.

Amazingly, 60 years later, the two SGS 1-21 sailplanes still exist. The SGS 1-21 featured in this article is now owned by Jim and Simine Short of Homer Glen, Illinois. Their 1-21 is the second of the two built and was recently purchased from Walter Cannon. Restored in the early 1990s by Walter, this sailplane received the “Best Schweizer” award at the 1995 International Vintage Sailplane Meet. As can be seen in the accompanying photos, the 1-21 is indeed well taken care of and looks simply beautiful whether at rest on the ground or in its element flying.

The SGS 1-21 has a wing span of 51 feet (15.54 meters) and is 21.9 feet (6.68 meters) long. The wing area is 165 sq. ft. (15.3 square meters) with an aspect ratio of 15.75.

Airfoils used are the NACA 23012A at the root transitioning to an NACA 43012A at the midspan of the ailerons. From there it transitions to an NACA 23009 at the tip with two degrees of twist for washout.
Two sets of spoilers are fitted to each wing, inboard of the ailerons. The outboard spoiler opens both top and bottom whereas the inboard spoiler opens on the top only.

The fuselage is primarily oval in cross section save for a circular section at the nose cap and under the horizontal stabilizer where it transitions to vertical sides at the rudder tailpost. Construction is all aluminum except for a blown plexiglass canopy with shoulder side windows, and fabric covered ailerons, rudder, elevator and a small section of the inboard wing surface aft of the spar.

Jim Short speaks highly of the SGS 1-21: “The 1-21 is indeed magnificent in its handling and performance, especially for a 60 year old sailplane. In comparisons, it seems to perform equal with the later model long wing SGS 1-23s and sometimes it will give an early Ka-6 a run for its money. The performance at slow speed is as would be expected with the NACA 23 and 43 series airfoil combination and it climbs very well. Although inconclusive, it seems that it holds its performance at higher air speeds better than the older Gottingen airfoils.

“Given the time of its introduction in 1947, and the state of sailplane design in the world, the 1-21 was one of the very highest performing sailplanes in the world. Various sources list its L/D as 27:1 (Schweizer) or 29:1 (OSTIV, World Sailplanes Vol.1) which would make it the equal of the great 18 meter icon of the period, the Weihe.

“Although the tail section of the 1-21 is beautiful, it is a bit short of rudder when maneuvering is necessary in tight thermals. None of its later owners have flown it with water ballast, but I expect a higher wing loading would help it in the glide. The ailerons are a bit heavy (common for that period of time) but no heavier than, for instance, the Olympia.

“It is docile in handling, especially for heavier pilots, and has little tendency to spin unless fully provoked. Unlike older wooden sailplanes, it is as strong now as when it was built and should be mildly aerobatic, though I have not tried that portion of its performance envelope yet. It is stable in handling and having double dive brakes gives the opportunity to try something different. For cloud flying, the double dive brakes can be locked open which is a good safety feature.

“As you might expect, I am in love with this exquisite and rare American bird.”

The accompanying photos were taken by the author at the 2007 Wabash Valley Soaring Association’s Vintage/Classic Sailplane Regatta held in June in Lawrenceville, Illinois.

My deepest thanks to Jim and Simine Short for the additional information regarding their prized sailplane and for supplying the 1947 photo of Ernie Schweizer with S/N 1 as well as the period advertisement announcing the addition of the 1-21 to the Schweizer product line, and also to Martin Simons who graciously gave permission to include his rendering of the SGS 1-21 from “Sailplanes by Schweizer: A History” which he co-authored with Paul Schweizer.
Above: Jim Short with his Schweizer 1-21 S/N 2.
Right: A 1947 photo showing Ernie Schweizer with S/N 1.