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Sensuously

Ryan

SCW

CHRIS MILLER

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Svelte

The Larson family's flying legacy

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The svelte silhouette of the 1938 Ryan SC-W145's streamlined fuselage, accentuated by its shapely rudder and finely tapered wings, is a distinctive example of aircraft artistry from the late 1930s. Viewed from virtually any vantage point, this Warner-powered Ryan Sport Coupe is one magnificent flying machine. It's no

surprise that Brad Larson, an EAA member since 1965, has been caretaker for NC18912 (s/n 206) for 58 years now, and counting. He personally completed its 10-year restoration in 1962, when he was 47 years old. He's 95 now and still enjoys flying it with his son, Glenn—especially to a fly-in, where other folks can enjoy it as well.



NC18912 was originally equipped with a wooden Hartzell propeller and a 145-hp Warner. It now has a 165-hp Warner and an Ole Fahlin propeller.

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Ryan Aeronautical Company

The Sport Coupe, or SC, was conceived by T. Claude Ryan, founder of Ryan Aeronautical Company at Lindbergh Field in San Diego, California. By the late 1930s, the company was already known for its tandem-seat, open-cockpit, Menasco-powered Ryan ST (Sport Trainer) and Ryan STA (Aerobatic). In early 1937, Approved Type Certificate (ATC) No. 651 was issued for Ryan's SC-150 prototype (NX17372, s/n 201), as powered by a 150-hp Menasco. But after flight tests, the Menasco was removed and a seven-cylinder 145-hp Warner Su-

per Scarab was installed. Thus the prototype became an SC-W145 (NC17372) under ATC No. 658 on October 31, 1937. (This airplane is now on display at Pioneer Airport at the EAA AirVenture Museum.)

The SC-W was revolutionary in the era of primarily tube-and-fabric construction methods and easily attracted ardent admirers due to its striking appearance, precision all-metal construction, and overall responsive performance. A full-page ad in the March 1938 issue of *Aero Digest* proclaimed the Sport Coupe's popularity at the trade show in Chicago: "Crowds and More Crowds

Hailed this New Era Cabin Plane! . . . Ryan S-C was a whole show in itself. The air-wise flocked to the only new design in production that was shown. With its sleek modern metal construction, with vision never before obtained in a cabin plane, the new three-place Ryan S-C 'stole the show' at Chicago. Beautiful to look at, beautiful to handle, all agreed that the S-C combines more advanced features than any other plane in its field." The ad further heralded the features of the airplane by stating: "Like modern airliners, built for comfort, security and performance, the S-C com-



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Brad Larson and his son, Glenn, with Brad's favorite airplane.



H.G. FRAUTSCHY

Brad Larson (left) and David Russell Williams stand in front of Brad's Ryan when the two SCW owners visited the Grass Roots Fly-In in 2008.

bines the advantages of low wing design and metal construction. ... Its maneuverability is amazing; its response to the controls uncanny. Professional and amateur pilots alike pronounce it the easiest ship to fly in America. Inherent stability permits protracted flying with hands or feet off the controls."

The SC-W featured side-by-side adjustable seating in the front, with a third seat in the back. Pilot and passengers entered the sound-proofed cabin from the wing walk. After effortlessly sliding the canopy aft along its ball-bearing tracks, they easily lowered themselves into the SC-W's neatly appointed cabin, with its soft leather seats and individual

heat and ventilation ducts. If additional fresh air was desired, the canopy could be opened during flight.

Yet only 12 Ryan SC-Ws were produced before World War II began in 1941. The company abruptly switched its focus from the lightplane and sportsman market to producing military primary trainers (PT series). After the war, Ryan purchased the rights to North American Aviation's Navion, re-entering the lightplane market. Of the dozen SC-Ws manufactured, nine are currently listed on the FAA Registry.

Specifications and Construction

The SC-W's monocoque fuselage is composed of formed bulkheads

and heavy aluminum sheet. The distinctive cantilever wings span 37 feet 6 inches. Aircraft historian and author Joseph Juptner describes the wing construction as being "... a type of monospar wing wherein the single hollow spar beam formed the first third of the wing's front edge as a monocoque all-metal box; the wing ribs cantilevered from the spar's rear face to the trailing edge. The forward third of the wing was covered with "Alclad" (24ST) metal sheet, and the rear 2/3 portion was covered in fabric." (*U.S. Civil Aircraft, Volume 7*)

The chord at the wing root measures 99 inches, which dramatically tapers down to only 26 inches at the wingtip. The detachable, rounded wingtips are also made of aluminum. The fabric-covered ailerons have a static and dynamic counter balance, and the rudder, elevators, vertical stabilizer, and strut-braced horizontal stabilizers are also fabric-covered. The airframe measures 25 feet 5 inches from nose to tail, and stands 7 feet tall on its widely spaced main gear (97-inch tread).

As powered by the 145-hp Warner, its empty weight is 1,345 pounds, and its gross weight is 2,150 pounds. With a fuel burn of 9.5 gph and a capacity of 37 gallons, the Ryan SC-W145 offers a range of around 450 miles, while cruising in the neighborhood of 135 to 140 mph. Its maximum speed is 150 mph. One particularly unusual feature of the SC-W is its perforated center-section belly flap (air brake) with a total area of about 5 square feet. The air brake can be extended 35 degrees while flying 108 mph or less; landing speed with the air brake extended is 45 mph—otherwise, it's 55 mph, and air-oil shock struts facilitate soft landings.

Lifetime of Flying

When he was young, Brad Larson's interest in aviation was sparked by a friend's Jenny. He embraced his first airplane restoration while still in his teens; in 1931 he bought a 1925 Henderson-powered Dormoy

(designed and built by Etienne Dormoy, who also built the 1924 Dormoy Bathtub). Brad recalls that the 1925 model was an improved version with fabric covering, and it had placed second and third in the 1925 National Air Races. Naturally, Brad was excited to have the opportunity to restore the airplane, and after covering the fuselage and wings, he installed a low-powered Indian motorcycle engine on it, instead of the costlier 20-hp Henderson engine. It was perhaps his first practical lesson about horsepower and airplanes; the small Indian simply didn't generate enough power to even lift the ship off the ground.

In 1932-1933, Brad learned to fly in a 1931 tandem-seat, open-cockpit, pusher airplane that few today have seen aloft. "Three of us bought a Curtiss Junior, and I learned to fly in that," Brad recalls. "I flew an Aeronca C-3 quite a bit, and had a couple of Cubs." Although he has logged numerous hours in several aircraft logbooks, he has never to-

Glenn shows how to activate...

...the perforated drag flap mounted below the cockpit.



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The cockpit of the Ryan is best described as “well-loved” and careworn. While not a showplane, its worn instrument panel paint highlights the fact the Ryan has never been a hangar queen. Over the decades Brad Larson has flown the aircraft from coast-to-coast on numerous occasions.



tailed his hours of lightplane flying.

He later began his aviation career as an aircraft mechanic. He would go on to become a pilot for Northwest Airlines, and eventually he started training other pilots and giving them their six-month check flights and type ratings. The latter was a challenging yet rewarding role that he fulfilled for 15 years. Throughout his career, Brad’s interest in lightplanes never wavered—he’s owned a variety of airplanes, including a Taylorcraft on floats, a

couple of Bonanzas, and another Curtiss Junior, and he still owns an award-winning Cessna Airmaster on floats. When asked what his favorite airplane is, he flashes a handsome, knowing smile and happily responds, “The Ryan SC-W.”

NC18912 was featured on the cover of the March 1975 issue of *Air Progress*, in which Budd Davisson’s corresponding pilot report was published. Davisson was impressed with the airplane’s 800 fpm climb, the impressive deceleration obtained by

merely half-deployment of the perforated belly flap, and the aircraft’s excellent visibility. Additionally, he wrote, “The long-span ailerons give a quick response, but the same large ailerons that give quick roll rates also



Photo of NC18912, with its bomb attached during its anti-submarine patrol days.



Young Brad Larson, with his 1925 Dormoy—he's re-covered the fuselage, installed the Indian motorcycle engine, and is ready to attach the wing.

make stick forces on the heavy side. But the airplane is nimble." (The entire pilot report is available at www.Airbum.com.)

Bombs Away!

This particular Ryan has some interesting history. "During World War II, our plane was used as an anti-submarine dive bomber from the eastern United States' coastal waters down to the Florida coast. The doctor who owned the SC-W at that time had named it *Honey Child*, and he loaned it to the Civil Air Patrol," shares Glenn. More detail about this facet of the Ryan's history is revealed by the aircraft records, which include the Supplement to Aircraft Operation Record (Form 309), dated September 12, 1941. This form states that Ryan SC-W-145 (s/n 206), with Civil Aeronautics Administration (CAA) identification mark NC18912, was authorized for the following additional operation: "May carry specified bomb load, only under direct orders of the proper military authorities. Operation Limitation - No persons other than bona fide members of the crew may be carried with bomb installed." The new weight schedule of the airplane accounted for the bomb shackle and installation weight of 8 pounds and the 100-pound weight of the bomb. This confidential paperwork was signed by G.G. McElravy, senior aircraft inspector, and dated May 28, 1942. The following year, a CAA Repair and Alteration Form showed that then-current owner Robert Silverman of Pennsylvania had the bomb shackle and release removed from the aircraft as of September 1, 1943.

Glenn also shares that NC18912 "was once flown by Gen. Jimmy Doolittle, and this airplane was featured in the Hollywood movie *Wake Island* as a Japanese Zero." [This 1942 Paramount Pictures' movie received four Oscar nominations.] "Plus, the airplane is fully aerobatic—there used to be a guy ('Dee' Barnard) from Michigan who did air shows in another SC-W (NC18914) back in the 1960s."

PHOTOS COURTESY BRAD LARSON

Chain of Ownership

Ryan Aeronautical Company's chief engineer, Millard C. Boyd, signed the Manufacturer's Affidavit of Conformity for s/n 206, SC-W145 on April 12, 1938. Two days later, the airplane was sold to its first owner—Warner Aircraft Corporation of Detroit, Michigan. In September 1940, Richard Booth Wallace of Bloomfield Hills, Michigan, sold it for \$2,500 to Herman Neuweiler of Allentown, Pennsylvania. Neuweiler sold it for \$3,500 in January 1942, and Robert Silverman of Philadelphia became the new owner. Other owners included William Cherney and Dupree Wooten of Chicago, Rex Short of Michigan, and Gordon Haase of Appleton, Wisconsin. Haase sold it to Fliteways in September 1948, and it sold it the following month to Paper Cities Flying Service, also of Wisconsin. In April 1949, Northern School of Aviation of Marquette, Michigan, bought NC18912. It sold it in October 1951 to the Marshfield Aero Club of Wisconsin.

The following July, the Ryan SC-W changed hands yet again—this time, it went to Brad Larson of Minnesota. The SC-W hadn't been advertised; in fact, it had been disassembled and was collecting dust in storage. "I found it back in a hangar," recounts Brad, "when I was trying to sell my civilian Howard—NC22424, the Shell Oil Howard—to a fellow for around \$2,300. I saw this airplane all in parts in the back, and said, 'What's that?' He told me, 'That's a little Ryan Sport Coupe model.' I said, 'Throw all that junk in with it, and it's a deal.' I had never flown a Ryan SC-W before, but I did have a ride in one."

Restoration

Delighted with his find, Brad set about the process of personally restoring it during the next 10 years. Prior to the Ryan project, he had already restored a few airplanes, including the early Dormoy, a Piper Cub, and a Rearwin Cloudster. Glenn was a young child at the

The following is an enlightening firsthand account of the manufacturing techniques used for the Ryan SC models, as published in the December 15, 1937, issue of *The Sportsman Pilot*:

The appearance of the new metal Ryan Warner- and Menasco-powered cabin planes (SC-145W and SC-150 respectively) has created added interest in the pioneering metal-working practices developed by T. Claude Ryan in the interests of mass production of aircraft.

Describing the processes worked out, William Wagner, of Ryan Aeronautical Company, reports that in making ... "The new S-C cabin plane, a full-scale plaster model was constructed in great detail following completion of the wooden 'mock-up.' After designers and engineers were satisfied that desired results would be obtained, individual plaster of Paris molds of the contours were taken from the original mock-up.

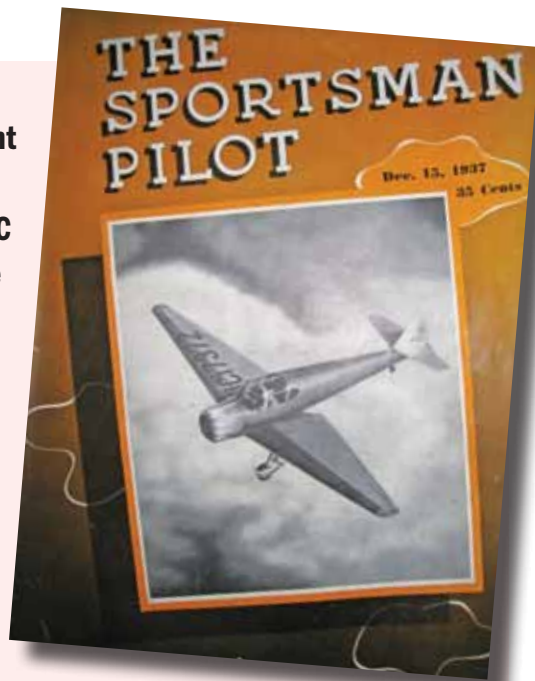
"These were developed into zinc dies which were poured into sand molds whose shapes were reproductions of the various sections of the mock-up. These dies are carefully cast and require but little polishing and grinding to give the precision contour required. The punch, or upper portion of the die, was then cast in lead on top of the zinc die. With the die in place and hammer working, it has been possible to stamp into the desired forms uniform metal sheets with precision on a quantity basis.

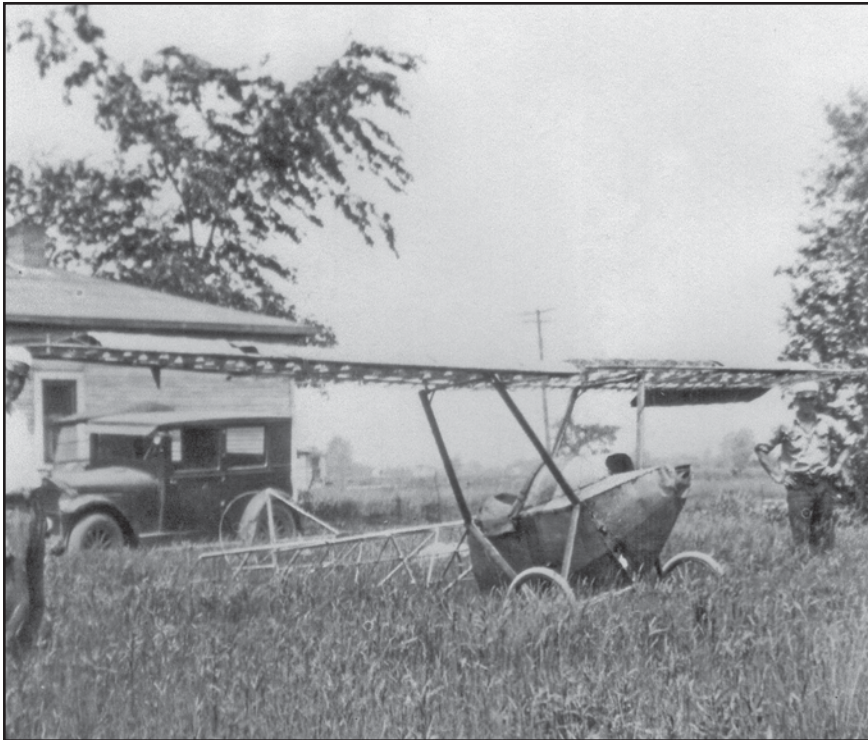
"Before assembly, all sheets are finished and all holes drilled for rivets by the use of Ryan 'nesting' type steel templates. These master templates eliminate all layout work on individual parts, several hundred being used with one for practically every part in the plane.

"When all parts are thus stamped by precision metal dies and completely finished to the same degree of accuracy, all units fit together and assembly becomes an exact and rapid operation. So accurately do the component parts coincide that there are but ten principal points which must be determined by jiggling—the three wing fittings at both wing roots and the four engine mount fittings.

"With the exception of the engine installation and associated equipment, there is no structural difference between the Menasco- and Warner-powered Ryan S-C models. Thus, both in-line and radial engine proponents have available the same production airplane.

"Ryan is tooled and in production at present in moderate volume, and when a market of large volume is developed the company is ready to turn out planes on a quantity basis."





Sixteen-year-old Brad Larson (right) and his best friend, Karl Jessup, with the Dormy prior to restoration.

time, and he remembers watching the Ryan take shape under his father's skillful hands. "It was like a playground to me, and I used to sit inside it. I was the only kid in town with a real airplane in the basement," Glenn says, laughing. "Later on, I did all the riveting in the back of the tail, because I was the smallest and could get back in there. My dad restored the Ryan to enjoy and fly anywhere; not to put in a museum."

After the aircraft had been stripped of its wing and tail fabric, and all the metal parts were cleaned, Brad inspected the components and found them to be in good condition and ready for covering and assembly. He re-covered the control surfaces, and the wings were re-covered with Grade A cotton and butyrate dope, installed all new modern hardware and new Plexiglas windows, replaced the electrical wiring, and reupholstered the cabin interior. New tires and tubes were installed, the gas and oil tanks were in good condition, and the two-piece engine cowling was repaired.

Instead of going with the original 145-hp Warner, he opted to install a 165-hp Warner—a similar instal-

lation had been previously accomplished for Ryan s/n 208, and that paperwork facilitated the required field approval for Brad's installation. He overhauled the engine himself, and reflects that "all kinds of parts were available at that time." He doesn't recall encountering any major challenges along the way and completed the restoration in 1962. A couple of years later, he modified the instrument panel to accommodate a new radio installation and converted the tail wheel to make it full-swiveling and steerable. Since NC18912's restoration was completed, the airplane has been flown fairly regularly and has always been hangared.

Larson's Legacy

The Larson family has logged around 1,800 hours on the SC-W since the early 1960s, and the airplane has endeared itself to these aviators. After all, Glenn explains, "It's the first plane I ever flew! He got me so I could do the basics in this; then I went to Nelson-Ryan Flight Service in Minneapolis and learned to fly. The SC-W has basically been our family airplane, and

my older brother, Paul, also enjoys flying it with my dad. All three of us fly—or have flown—for Northwest Airlines. My dad went from the Gullwing Stinson to the 747, and I haven't retired yet. We'd all fly the Ryan to Rockford or Oshkosh, and to the Antique Airplane Association fly-in in Ottumwa, Iowa. My dad used to live in Santa Paula, California—where he rebuilt the Cessna Airmaster—and we've flown all over the country."

Glenn chuckles and shares that his most memorable—but not his most pleasant—flight in the Ryan took place in December 2009. "I left Flying Cloud Airport in Minneapolis when it was 5 degrees below zero, to bring it to Florida. They had a big snowstorm up there, and I pushed it out of the hangar and immediately all the windows frosted up. I took a credit card and a rag and cleaned the windows—I had no heat in the airplane and didn't warm up until I got down as far as Nashville!"

Brad patiently and painstakingly hand polished the Ryan before he and Glenn flew it over to Sun 'n Fun from Sarasota. While the Larsons have attended the fly-in numerous times, this was their first time being there with an older restoration. "People still like to look at it," says Glenn, smiling. "And we don't judge the plane by whether it has the correct head on the screw or the right nut; we look at the grass that's trampled down around the airplane, from where people have walked all around it, looking at it!" Brad chimes in, "That's the way to hand out the awards!"

The judges were among those who trampled a well-worn grass outline around the 1938 Ryan SC-W this spring; the Larsons were presented with a well-deserved Bronze Age Preservation Award for their efforts in maintaining the airplane all these years. Thanks to the Larson family's flying legacy, we can all enjoy savoring the distinctive silhouette of this sensuously svelte Ryan SC-W.

