

A.T.C. #375  
(10-8-30)  
SIKORSKY "SPORT AMPHIBION"  
S-39-B



*Fig. 231. Improved Sikorsky model S-39-B with 300 h.p. "Wasp Jr." engine.*

Introduced some 3 or 4 months previous as the 4-place model S-39-A, the Sikorsky "baby amphibian" was now being offered in an improved version called the S-39-B. Evolving from the experience gained in the testing of two different prototype airplanes (refer back to ATC #340), the S-39-A emerged as quite a success in general; however with the first flush of excitement in readying the new model for production, a few annoying short-comings did crop up here and there. As a result, the full capability of the design was misjudged, misjudged to the extent that its total potential was not put to good use. Not long in finding these things out, the third ship off the line was ear-marked for modification into the new model S-39-B, an improved version that was to embody all the necessary chances to obtain better results. A substantial increase in the gross loaded weight now allowed the seating for 5 instead of 4, with also a handsome increase in the baggage allowance. By aerodynamic refinement and some rearrangement, the same amount of power (300 h.p.) was translated into more efficient flight, and despite the increases in gross loading there was some performance improvement. Basically a little-sister version of the popular S-38 design, the S-39-B was called upon to perform all manner of chores, some of which were an unrelentless test of an airplane's

true character. As a truly versatile airplane, well able to operate with equal proficiency from land or the water, the S-39 was to prove its reliability conclusively in more than 60,000 miles of exploratory flight in the dark continent of wild Africa with Martin Johnson's expedition. In some of the most difficult terrain the world has to offer, the fully loaded amphibious craft often operated at 6,500 ft. or more above sea-level from in-land waters, and sometimes operating at about 7500 ft. above sea-level from high mountain landing strips. Even in 1935, although now a veteran of years of service but not yet outmoded by normal progress, an S-39 in stock trim, climbed to an altitude of 18,641 ft. for a class C3 record. An international speed record for the same class was also set over a 1000 kilometer course at 99.95 m.p.h. Primarily designed to handle the varied chores of all-purpose service, the S-39 in all its variants worked nearly unheralded as an air-taxi for men of business, shuttled back and forth in air-ferry service, complied to the whims of sportsman-pilots, and served in a short tour of duty at the West Point academy as the YIC-28. Some were even marshalled to work extra hard at emergency rescue during the troubled years of World War 2. Built in rather small number and under the prophecy of being "a very good airplane at a very bad time," the S-39 sport amphibian cer-

## SIKORSKY S-39-B



*Fig. 232. S-39-B now seated 5, other improvements increased the performance.*

tainly piled up a meritorious service record in its every-day life.

The Sikorsky "Sport Amphibian" model S-39-B was basically a "parasol" monoplane of the flying-boat type with its tractor-mounted engine high in the leading edge of the elevated wing. The slightly modified all-metal hull was a seaworthy structure to which was added a wheeled landing gear, a gear that was raised clear for operating on water or lowered into position for operating on land. Equally at home on land or water, the "amphibian" was never too far from a landing place and it selected either by extending or retracting its wheels; the wheels were pumped up or down hydraulically by a hand-pump in about 10 seconds. The short boat-type hull had excellent water character-

istics with a shape that allowed no water spray into the propeller or over the windshield. The landing gear wheels could be lowered singly or together while in the water to use for braking, maneuvering or beaching. In the water, the large steerable tail wheel (18"x3") acted as a water rudder. Water maneuvering in a high wind was pretty much of a problem, but dropping a wheel on either side for a focal point to turn on, helped considerably. Generally, the visibility out of the S-39 was very good but restricted somewhat to forward because of the rather long bow. Under certain operating conditions it was possible and even advisable to remove the landing gear and tail wheel to make up a true "flying boat" capable of carrying some 200 lbs. extra in useful load. The "Amphibion's"



*Fig. 233. S-39-B sport "Amphibion" used for business and pleasure; many served for ten years or more.*

behavior on land was admirable despite its somewhat unwieldy appearance; effective wheel brakes and a large steerable tail wheel made taxiing and other ground maneuvering a fairly easy chore. Comfortable and exceptionally roomy, the cabin now had seating for 5 with a wide full-length roof hatch for easy loading and unloading. Powered also with the 9 cyl. P&W "Wasp Jr." engine of 300 h.p., performance of the S-39-B was in some cases improved and more than adequate for a craft of this type; whether on land or water, the S-39 landed gently, take-offs were short and clean and the climb-out left good margin for operating out of smaller fields. Airborne, the S-39-B responded well, was stable in all directions and a very pleasant airplane to fly. The type certificate number for the 5-place model S-39-B was issued 10-8-30 and some 9 examples of this model were built, although most all of the earlier S-39-A were later modified to the new specifications. By this time in the latter part of 1930, the keel for the big 17-ton 4-motored model S-40 was being laid; ordered by Pan Am, it was the biggest craft Sikorsky had ever built until now and was the original of the famous Pan American "Clipper Ships."

Listed below are specifications and performance data for the Sikorsky model S-39-B as powered with the 300 h.p. "Wasp Jr." A (R-985) engine; length overall 32'2"; height on wheels 11'8"; wing span 52'0"; wing chord 85"; total wing area 350 sq. ft.; airfoil Sikorsky GS-1; wt. empty 2678 lbs.; useful load 1322 lbs.; payload with 65 gal. fuel 717 lbs.; (4 passengers at 165 lbs. each and 57 lbs. baggage); gross wt. 4000 lbs.; max. speed 119; cruising speed 100; landing speed 54; climb 750 ft. first min. at sea level; climb in 10 min. was 6000 ft.; ceiling 18,000 ft.; gas cap. normal 65 gal.; oil cap. 6 gal.; cruising range at 15 gal. per hour was 400 miles; price at factory was \$20,000 as of May 1931.

The construction details and general arrangement of the model S-39-B was typical to that of the S-39-A as described in the chapter for ATC # 340 of this volume, including the following. The spacious cabin interior was now arranged for the seating of five; the two forward seats were the individual type and the rear seat was a wide bench type for seating 3 across. A baggage allowance of 157 lbs. included anchor

and rope at 22 lbs., a tool kit at 15 lbs. and 5 life-preserver jackets at 9 lbs.; a "speed-ring" engine cowling accounted for another 27 lbs. of the baggage allowance, leaving some 84 lbs. for the actual baggage load. Normal fuel capacity was 65 gal. in 2 tanks of 32.5 gal. each; 2 extra tanks of 12.5 gal. each were also eligible to increase fuel capacity to 90 gal. All fuel tanks were mounted in the center-section panel of the wing. Serial # 902 was eligible with 105 gal. max. fuel cap. The outer wing panels were detachable from the center-section portion for storage; with floats still attached, the total width was then only 18 ft. & 2 in. The single rudder on the S-39-A proved inadequate for proper maneuvering in water or in the air so on the S-39-B it was enlarged in area with a sub-rudder extension, increasing the overall length by some 3 inches. Because of its overhead placement, the engine was rather difficult to work on, so factory mechanics devised a small scaffold that fitted across the hull to reach the engine in a comfortable attitude, and to prevent tools from falling through the windshield below. Despite its spidery arrangement the S-39 was quite rugged in frame and character and most examples served usefully for 15 to 20 years. Two other versions of the S-39 were the model S-39-C as built under Group 2 approval numbered 2-391 and the model S-39-CS as built under Group 2 approval numbered 2-436. The next Sikorsky development was the twin-motored 16 passenger model S-41-A described in the chapter for ATC # 418.

Listed below are Sikorsky model S-39-B entries as gleaned from registration records:

NC-888W;	Model S-39-B (# 902)	Wasp Jr. A
NC-896W;	" (# 906)	"
NC-50V;	" (# 912)	"
NC-51V;	" (# 913)	"
NC-53V;	" (# 915)	"
NC-54V;	" (# 916)	"
NC-55V;	" (# 917)	"
AC32-411;	" (# 919)	"
NC-58V;	" (# 920)	"

Serial # 900X-901-903-904-905-907-908-909-910 first as model S-39-A, all were modified as S-39-B; ser. # 911-918 modified to S-39-C; ser. # 914 modified to model S-39-CS; ser. # 919 as Army Air Corps YIC-28 at Wright Field & West Point Academy; ser. # 920 later modified to S-39-C Special.



#2-391 (11-12-31)

Sikorsky S-39-C as 4-5PCAmM with 400 h.p. Wasp Jr. S1A engine; for ser. #911, 918 at 4014 lbs. gross wt. Ser. #920 also eligible, but as S-39-C Spl. with 400 h.p. Wasp Jr. TB or T3A engine. Refer to ATC #375 for basic data.