

Building Sword's 1/72 scale

Sikorsky

S-43

by Mark Schynert

IPMS #37206

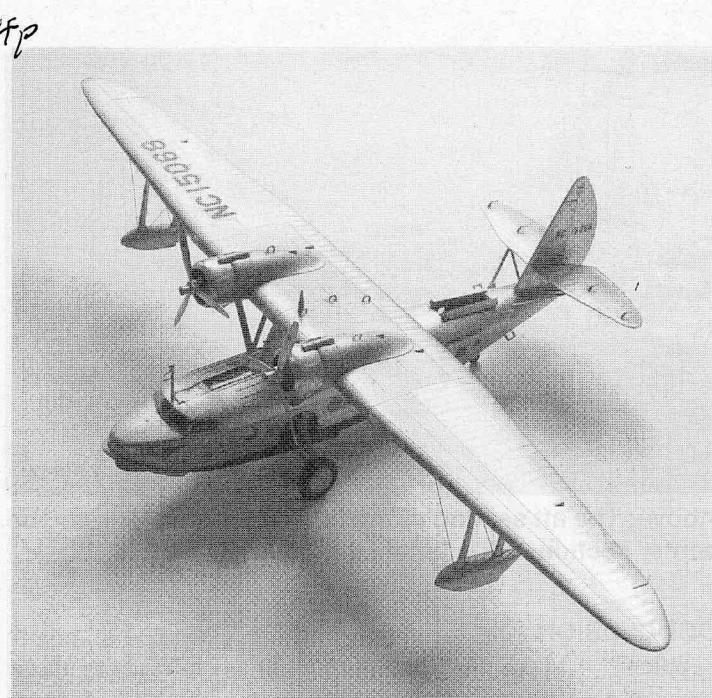
The Sikorsky S-43 was one of the last really successful twin-engined transport flying boats. Most of the 53 examples were single-tailed amphibians, though both twin-tailed and pure flying boat configurations were built.

First appearing in 1935, the S-43 presents an interesting contrast to the contemporary Douglas DC-2. The DC-2 seated 14 passengers, while the S-43 typically was configured for 15. The S-43 had two Pratt and Whitney R-1690 radials of 750 hp, which was also one of the engine options for the DC-2. The S-43 had a range of about 750 miles at a cruising speed of 166mph, while the DC-2's range was 1,000 miles at 198 mph. This illustrates the beginning of a performance divergence that eventually killed off flying boats as viable commercial aircraft for standard airline routes. Of course, the great advantage of a flying boat was the ability to land on water; runways were still relatively scarce in many parts of the world before World War II.

The S-43 was called the 'Baby Clipper' by Pan American Airlines, which used fourteen of them. The U.S. Navy flew fifteen under the designation JRS-1; the Marine Corps had two as well. The USAAF had five OA-8 amphibians and later impressed another S-43 under the OA-11 designation. The others flew commercial operations in Hawaii, Alaska, Brazil, West Africa, the Philippines and the Soviet Union; one was purchased by Howard Hughes, modified for very-long-range flight, and then put in storage for almost thirty years instead of being flown. At least one of the former Marine aircraft was under restoration in Arizona as recently as 1990.

Sword has issued a limited-run injection kit of the S-43 in 1/72. I'm already a sucker for almost any flying boat kit, but this was an especially attractive subject, falling in size between the very large patrol types of World War II and the smaller shipboard-capable single-engine types like the Supermarine Walrus. I started the kit almost as soon as I got it.

The kit provides details for a complete model of the interior and exterior. Resin accessories are offered: pilot's seats with integral belts, single and twin passenger seats, oil cooler scoops, exhaust pipes, elevator balance weights, and one of the alternative propeller hub types (the other alternative being on the injection sprue). The injection parts are in some cases a bit rough, especially the tinier



bits, but are all usable. With a few exceptions, the parts are easily cleaned up; those few are the tiny hand holds on the wing, and the wheel wells. The latter have mold marks deep within the recesses, which made them difficult to sand out.

The clear parts consist of a nice windscreen and a plethora of porthole-type windows for the fuselage; these latter require some work to clean up because of the heavy gates. The decals appear to be good, depicting alternative Navy or Marine corps schemes.

The kit-provided decals were fine, but I wanted a civil scheme, Pan American in particular. Where would I get the markings? One needs to look no further than the old Airfix 1/144 Boeing B-314 Clipper kit. The various logos and text are almost right on for scale and font when translated to the S-43 in 1/72, and the clincher is that, with transposition of the numerals, one can even generate a valid registration number for the S-43, using the B-314 serials. However, most of the Pan Am S-43 is in natural metal. With a limited-run kit, and particularly a parasol-winged flying boat, the challenges are significant.

The kit presents engineering and preparation issues of moderate to severe difficulty. The hull is two pieces, but the top of the fuselage is open from the cockpit to well aft of the wing. This area is to be covered by two pieces (left and right) that with luck will form a continuous roof line that blends neatly with the top of the fuselage aft. This was undoubtedly a consequence of mold limitations, though I'm not sure why. The canopy's front edge is intended to fair neatly into the hull, while the back edge should be flush with the leading edge of the detached roof pieces. The pylon to the wing attaches to these same two roof segments at the join with a single large pin, and no other apparent means of support. Although the wing is also to be supported by two large 'N' struts mounting to the hull, the structural integrity of the model seemed questionable. It is only with substantial progress into the model that one realizes the pin comes down directly on top of an interior bulkhead, but more on that later.

The empennage is completely separate from the hull, consisting of a two-piece fin-and-rudder and one-piece tail planes. The assembly butts onto the hull without any guide or stubs, but the location is obvious from the shape of the mounting area right aft.

The wings are also a challenge. The wingspan is about fourteen inches in scale. Most of the wing is molded in two pieces, continuous upper and lower wing segments incorporating the engine nacelles. The last one-inch of each side is formed of two pieces each, which are to be butted against the main wing to form a continuous span. This unusual construction choice was probably forced by mold machinery limitations, along with the judgment that, for a parasol model, it would be better not to have distinct left and right main panels for the wing. The pylon attaching the wing to the fuselage is a two-piece assembly with straightforward qualities.

As I had a natural metal finish in mind, the wing tips were not a good sign, and it became worse when I realized that they matched the main wing fine front to back but were a touch too thick. This was undetectable in dry fit, since it was so hard to secure pieces for adequate comparison. My particular model was further compromised by some cracking in one wing near the tip. With a camouflage finish, these details could have been cleared up relatively easily, but with NMF, the slightest scratches show up.

First of all, I decided the butt mounting of the wing tips was inadequate. I drilled out holes and cut shanks from straight pins to give the joins some integrity beyond the solvent. I biased the joint to put the entire thickness mismatch on the bottom side. There followed hours of massaging the seams on both side of both tips with superglue as filler and constant sanding and polishing. The leading and trailing edges, and the nacelle seams also needed work, though this was much more straightforward. I pre-scribed some areas where I anticipated heavy sanding and filling. I also had to deal with the plastic cracks, all the while trying to preserve the delicate fabric covering detail on this part of the wing. I revisited the wing over the course of the weeks, frequently discovering scratches that I would then polish out. I also chose to mount the engines and cowlings at this stage, as well as the eight under wing aileron and flap hinges, but the latter had a tendency to pop off during the repeated scratch-eradication efforts. The same was true of the single most frustrating group of parts, the wing hand holds. These tiny 'U'-shaped styrene bits were miserable to get off the sprue intact, even worse to clean up, and absolutely horrendous to get in place (one on top of each nacelle, and three zigzagging along the top center section). I got all five attached, but three subsequently parted company. It took several weeks before I tracked them all down amidst the debris on the bench. The resin oil cooler intakes were the next to go on, but their contours in no way matched the mating surface designated by the plans. I created new contours on the intakes. The last details to add on top of the wing were the two carburetor intakes and the blade antenna. These presented little problem, though the intake location is not obvious from the plans. I also attached the assembled pylon to the wing assembly at this stage.

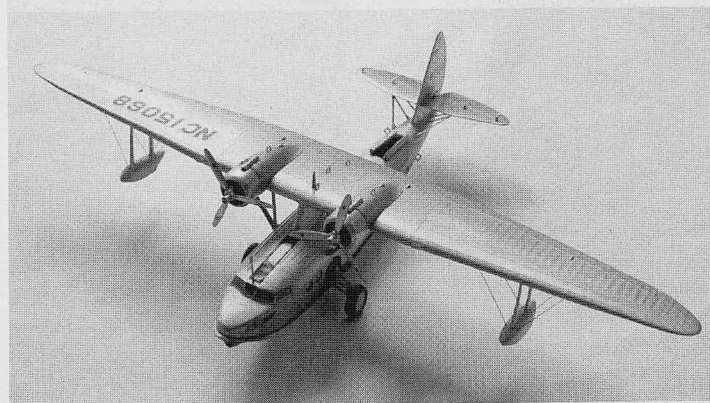
The propellers could be fit either with styrene spinners, or resin cylindrical hubs that resembled beer cans. The beer cans are right for the Pan Am aircraft, so I cleaned the pieces up and put them together without any problem.

The tail parts all went together with minimal difficulty, which meant I would next confront the hull. This model has an unusual interior layout. For one thing, there are eight large and one small porthole-type windows on each side. It's hard to guess prior to assembly exactly how much will be visible of the interior through the portholes and the windshield. The flight deck is decently detailed, with good pilots' seats and adequate instrument panel and

control wheels. Aft of the flight deck is a bulkhead with a door, which I left closed. This is followed by a compartment with no detail looked on by four of the portholes. Normally this area would either be dedicated to baggage, or have had a galley and a washroom. This is backed by a doorless (in the kit) bulkhead just forward of the wheel wells, which protrude into the hull. A tiny compartment around these wheel wells, is sealed by a third bulkhead, again doorless, after which comes the main passenger compartment. This has three double and five single seats, a configuration that may be correct for the Navy machines and not the Pan Am ones, but in the absence of better data, I was inclined to leave well enough alone. This compartment is backed by a fourth bulkhead, with a door, which leads to a tiny aft compartment with four jump seats and a stair that leads through a double gatefold hatch to the top of the hull immediately in front of the tail. Apart from this hatch, there are also side hatches at the aft end of the main compartment that can be built in the open or closed position.

Given the amount of detail that the inside provided, I decided that I would open the portside hatch and the double gatefold over the jumpseats, to maximize interior views. Unfortunately, the gatefold was represented by a single piece of plastic, which would have been tedious to cut into four parallel strips accurately, so I built a double gatefold from scratch, using Evergreen material. The other issue was what to do about the bare compartment forward. I had no detail on the washroom appointments, apart from knowing that it was installed to starboard of the centerline, and as this would have included a transverse bulkhead that would further reduce visibility through the portholes, I decided to fashion curtains to draw over the windows. Gingham trim fabric in navy blue and white seemed to fit the color scheme, and even sort of matched curtains I could see in one of the photos I had. These went on with gem-to-fabric glue after I had mounted all the circular windows with the same glue and applied Future acrylic polish to the inside surfaces. I felt the interior Future use was necessary because I anticipated using a lot of cyanoacrylate glue to seal and fill seams; I did not want CA fumes to fog the windows. At this stage, I also added the main wheel wells, which were separate pieces, and the starboard hatch, complete with its own porthole, in the closed position.

The interior went together for the most part in a clean manner. From the flight deck clear to the aft compartment a single piece is provided for the deck. The bulkheads attach directly to this, though

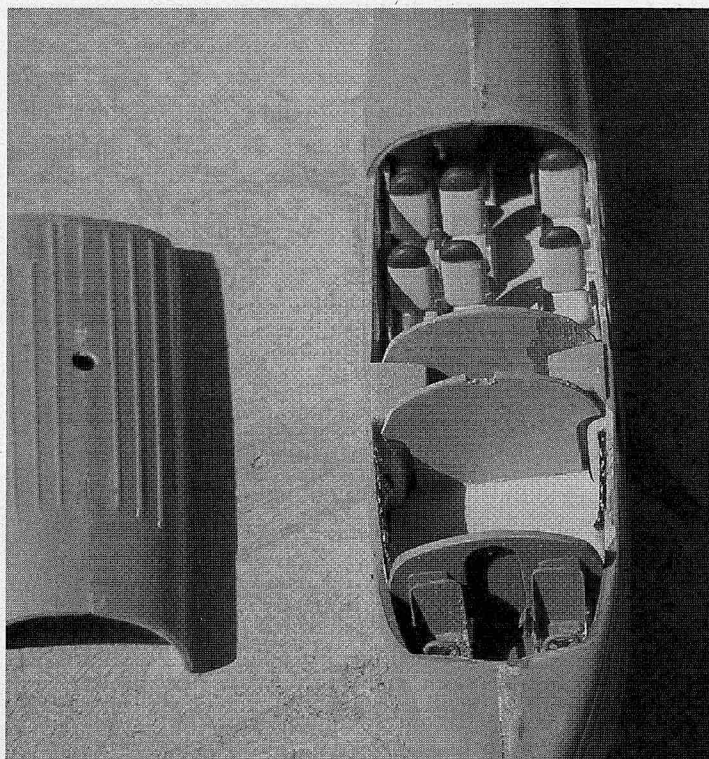


Mark built his 1/72 Sword kit as one of the fourteen Pan Am "Baby Clippers." To do this, he swiped decals from an Airfix 1/144 B-314 Clipper kit. The difference in size of the two models made the decals a near perfect fit for the S-43 kit.

each and every one is a butt joint except the extreme aft bulkhead. Once separated from their resin carrier plugs, the various seats are quite well fashioned. The main cabin passenger seats mount very cleanly in rows, and they have sufficient detail to support the dark-blue-on-light-gray upholstery color I decided on after seeing a color brochure of the interior of the Boeing 314. The pilot's seats mount to projections from the front of the bulkhead behind the flight deck, so these had to wait until the rest of the cockpit bits were attached. They also required more painting detail, with their integral seat belts, metal bucket and leather seat cushion. The rest of the cockpit detail went in with little trouble.

The aft compartment seats were not resin. The backs were molded two each to the bulkheads for the compartment, with the seats themselves separate styrene cushions contoured to simulate something. I assumed leather, so I painted the jumpseats accordingly. The far aft bulkhead was supposed to butt onto the end of the deck piece, but the assembly is complicated by the steps up and through the gatefold hatch. The steps go through a notch at the top of the bulkhead, and the staircase also has two sides. None of this fit particularly well, which involved a lot of sanding and filling. I attached a small horizontal platform aft of the last bulkhead, on which the tail wheel was anchored, and I painted these details now.

The cockpit details (instruments, rudder pedals, control wheels) were all straightforward, and the pilot and copilot seats went in smoothly enough once I saw where everything else was supposed to go. The massive interior assembly (everything but the instrument panel and the aft compartment assembly) slid into one side of the hull and around the wheel well with a tight and positive fit. Applying the other hull half to determine fit, I found that the port side was misaligned about one millimeter back from the starboard side. The problem was that the bulkheads were binding on the wheel wells.



Sword provides parts for a mostly complete interior. To obscure the total lack of detail in the forward cabin, however, Mark used gingham trim fabric to create curtains over the forward windows.

Much delicate sanding and dry-fitting later, I had eliminated the misalignment. Dry-fitting of the aft compartment assembly showed only some minor alignment problems with the stairway components against the dorsal hatch, but it looked like these would be hidden when the double gatefolds were put in place.

I glued the aft compartment assembly into place, then added the main interior assembly. I didn't even bother to glue it because it was attached so snugly and positively. I then closed the hull.

The net effect was rather like trying to squidge yourself into 34" jeans when you normally wear 35s. Fortunately, while superglue is not recommended for attaching your clothes to your body, it works just fine when forcing slightly reluctant joints to close. The ends went together with Testors liquid glue, and the superglue was applied to seal the in-between seams after the styrene solvent had done its job. It took about three hours to clean up, fill and polish out the hull (remember that natural metal finish?).

I had assembled the roof much earlier, bracing it on the inside with some strip styrene to assist with alignment. It didn't fit the hull very well, with one-millimeter gaps running along the hull on both sides. The three foremost bulkheads stood too proud. I also tried to fit the wing at this stage, and found that the base pin of the pylon wouldn't go all the way down through the hole in the roof, because the pin was hitting the second bulkhead at the top. Thus, the first order of business was to notch the bulkhead to allow the pin full travel, though I also appreciated being able to anchor the pin on the interior structure. After that, I sanded down the tops of the bulkheads until the roof fit properly, and again I had to dry-fit the wing and take more material out of the notch in the second bulkhead.

A dry-fit of the canopy and roof together showed a new problem—the decking in front of the windscreen was too high, meaning that the windscreen rocked from left to right. I removed some material from the middle of the decking, and also from the base of the windscreen, which minimized the problem, but it became clear the windscreen was slightly too shallow for the hull. Fortunately, the bulkhead right aft of the cockpit provided good alignment and support for the windscreen piece, which left easily filled gaps at the base on the left and right sides. I dipped the canopy in Future and after it dried, I glued the roof and canopy into place. Another round of seam filling followed. I also concluded that the pylon needed a second anchoring stub, so I made one of .030 styrene tubing and inserted it inside the bottom of the hollow pylon. I drilled out a corresponding hole in the top of the hole, which fortuitously came in right on top of the third bulkhead, giving me another strong anchoring point to stabilize the wing.

Attachment of the empennage required a little engineering. I created a couple of 8mm shanks from a straight pin and imbedded them in the base of the fin. I attached the empennage to the hull, with pre-drilled holes to accept the shanks, and then applied cyanoacrylate glue to the joint. Cleaning up the seam to the degree necessary for a metal finish took quite a while because of the constricted space between the tail planes and the hull. After cleaning up the seam, I attached the tail struts and a variety of small bits to the hull assembly. I also reattached the various small parts that had come adrift from the wing and tail.

I then discovered, to my dismay, that the tail assembly was misaligned. Looking from the front, the right stabilizer had about three degrees of anedral, and the left had three degrees of dihedral. Grumbling, I got out the Xona saw and carefully sawed through the left side of the base of the fin right along the seam I had just

filled, until I could bend the tail into a true vertical. This of course sprung the just-filled seam on the right side as well, so I got to do both sides over again. It was fortunate I had the shanks in there, allowing me to bend the joint instead of snapping it off. Another round of polishing followed, as well as some rescribing, and I was ready to think about paint.

The primary colors for the Pan Am scheme were black for the lower hull and the float bottoms, and natural metal for most of the rest. My NMF finish of choice is SNJ, which is very durable and stands up well to masking. Therefore, I decided to shoot the SNJ first, and add the black afterwards. I first had to mask the windshield and all twenty portholes, using a liquid mask, and I had to plug up the dorsal hatch area, the open portside hatch, the tail wheel area, the two pylon holes and the engine fronts. I wanted to paint the wing and hull separately, since the parasol arrangement would make for some very inconvenient angles otherwise. I would have to come back and spray the pylon and strut joint areas, but that didn't appear to be that big a deal. Apart from the two major assemblies, I also had to put SNJ on the port hatch, both double gatefold assemblies, the wing struts, the wing floats with their struts, and the propellers.

This is only the second time I've used SNJ. Providing you get rid of all scratches, seams and other imperfections, it's darn near fool-proof. The main problem with it is that it takes several coats to become truly opaque, which takes a little while. Fortunately, the individual coats dry fairly quickly, so it only took a couple of days to apply the SNJ. I did end up with a few tiny dings; since SNJ does not brush paint at all, I touched up with Humbrol aluminum.

Out of an abundance of caution, I waited two days before masking to add the black. The wing floats and the hull were masked; I then applied Poly Scale NATO tri-color black. After this dried, I ran the tip of a fresh X-Acto knife blade along the masking edge, because I've found that adhesion of acrylic paint to an SNJ surface is pretty poor; by breaking the lateral connection of the paint to the mask, I minimized the uneven edge that pulling away the mask might cause otherwise. I cleaned the SNJ where there was a little black overspray by using isopropyl alcohol on a cotton swab, and applying very light pressure; alcohol sometimes eats through SNJ, but I didn't have a problem because I kept the application light.

Application of the decals was uneventful, though time-consuming; as noted, most decals were taken from the Airfix Boeing 314 kit,



Mark painted his Pan Am S-43 with a natural metal upper surface and black under side. He used SNJ for the natural metal finish and Pollyscale NATO tri-color black.

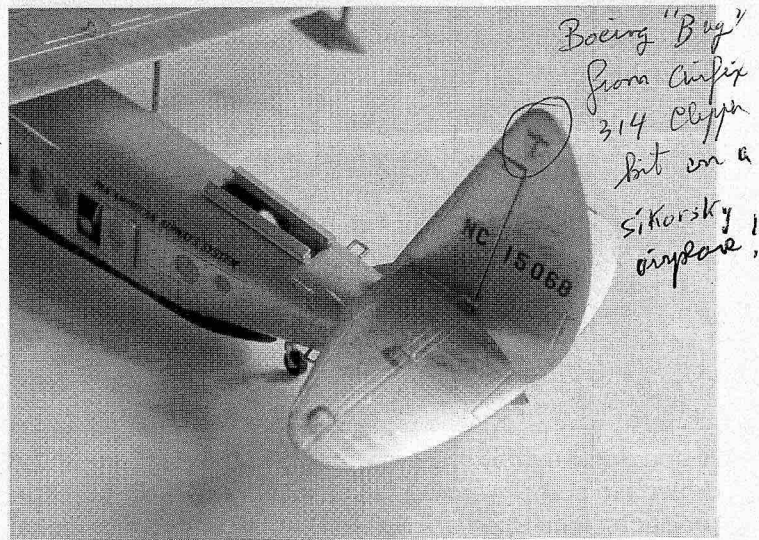
and the serials had to be completely cut apart and reassembled in a different order. The black walkway above the cockpit was done with stock black striping. The windscreen panes were coated with Future and then were defined with various widths of aluminum striping decals. SNJ provides a very smooth surface, so I did not need to prep the surface with Future before decaling. I did all the decaling before attaching the wing to the hull. I also placed the dorsal gatefold and the side hatch now, using gem-to-fabric white glue. Two or three small bits had come off; these were re-attached. I also added Future to the porthole exteriors.

The floats went on with suitable prep work to the wing underside, but the rigging was truly a bear. I tried monofilament line, but the stuff would not relax from the curl it came with in the package. By now it was the evening before the Santa Rosa contest, so I decided to back off, rather than make a mess under time pressure. I came back to the kit the following Tuesday. Resorting to .005 styrene rod, I finished the float rigging.

The main landing gear is a fairly complex assembly in its own right, and the instructions are helpful, but not quite enough. I found a diagram of the landing gear in one of my books; between the two sources, I was able to assemble it pretty well between decal sessions earlier in the process. Unfortunately, even assembled, it is quite fragile. This is a case where I wish the kit had come with white metal accessories for the landing gear, but this is really a small gripe. Attachment to the hull required a couple of tries, but I got everything aligned eventually.

I finally attached the wing pylon to the hull, as well as the wing struts, and filled the joints. Finishing the joint was delicate work because of the limited access between the wing and hull. Masking was also tedious, but necessary to get the SNJ finish just right. Once the pylon was on straight and the glue dried, I attached the massive N struts that ran between the nacelles and hull. Very little touch-up was necessary here.

The remaining tasks were to place the pitot and propellers, and I was finished. My result is hardly flawless, but I enjoyed taking a fairly challenging kit and building it in an even more challenging scheme just to get what I really wanted. The painting might have been a bit easier with a Navy or Marine scheme; this was a little bit more fun.



To aid in viewing the detailed interior, Mark opened the rear gate fold. Evergreen strip was for the replacement rear gate.

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