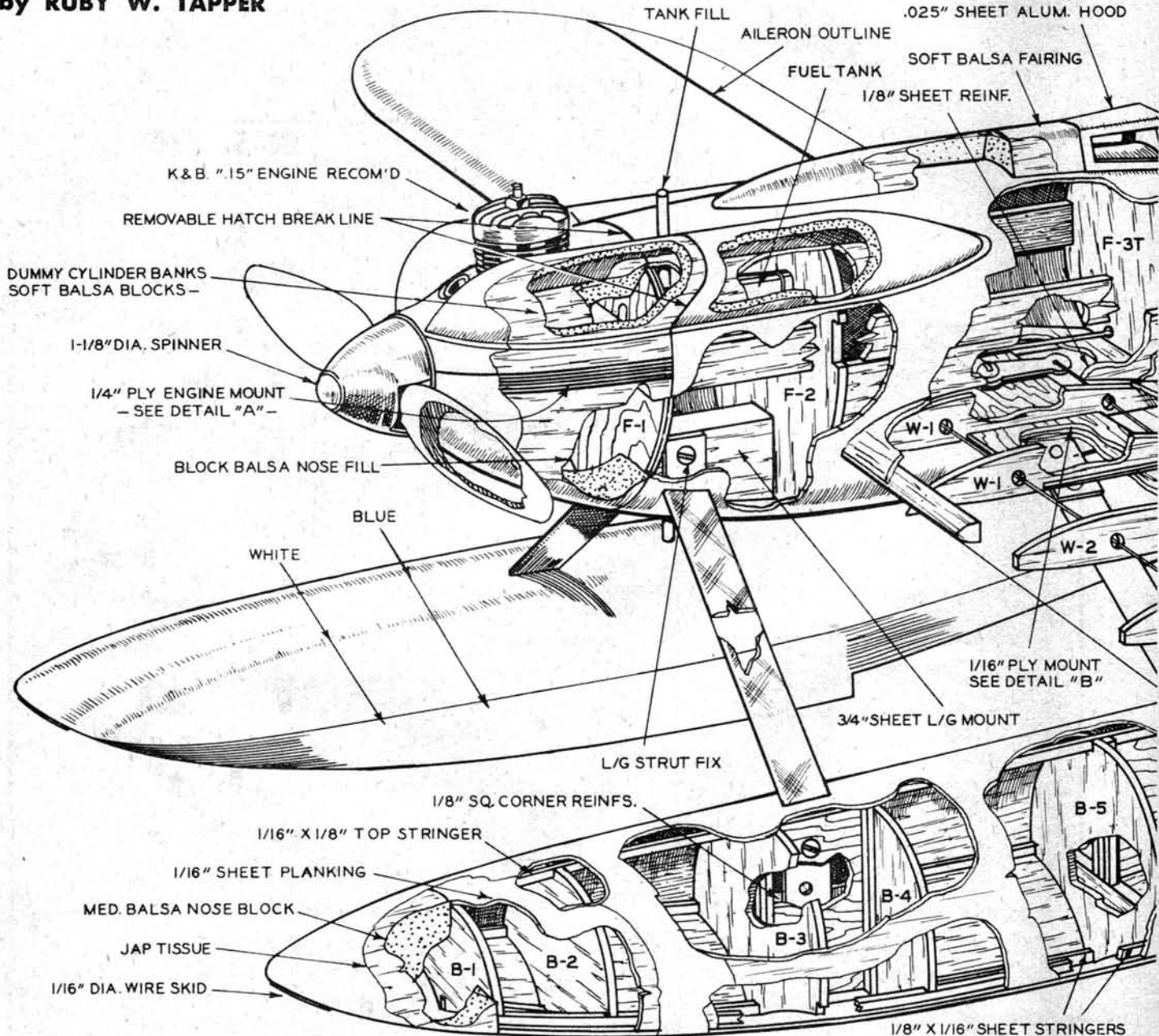


Supermarine S-6B

One of the greatest, possibly the most beautiful racing plane ever built, makes a terrific rise-off-water controlliner for .09 to .19.

by RUBY W. TAPPER

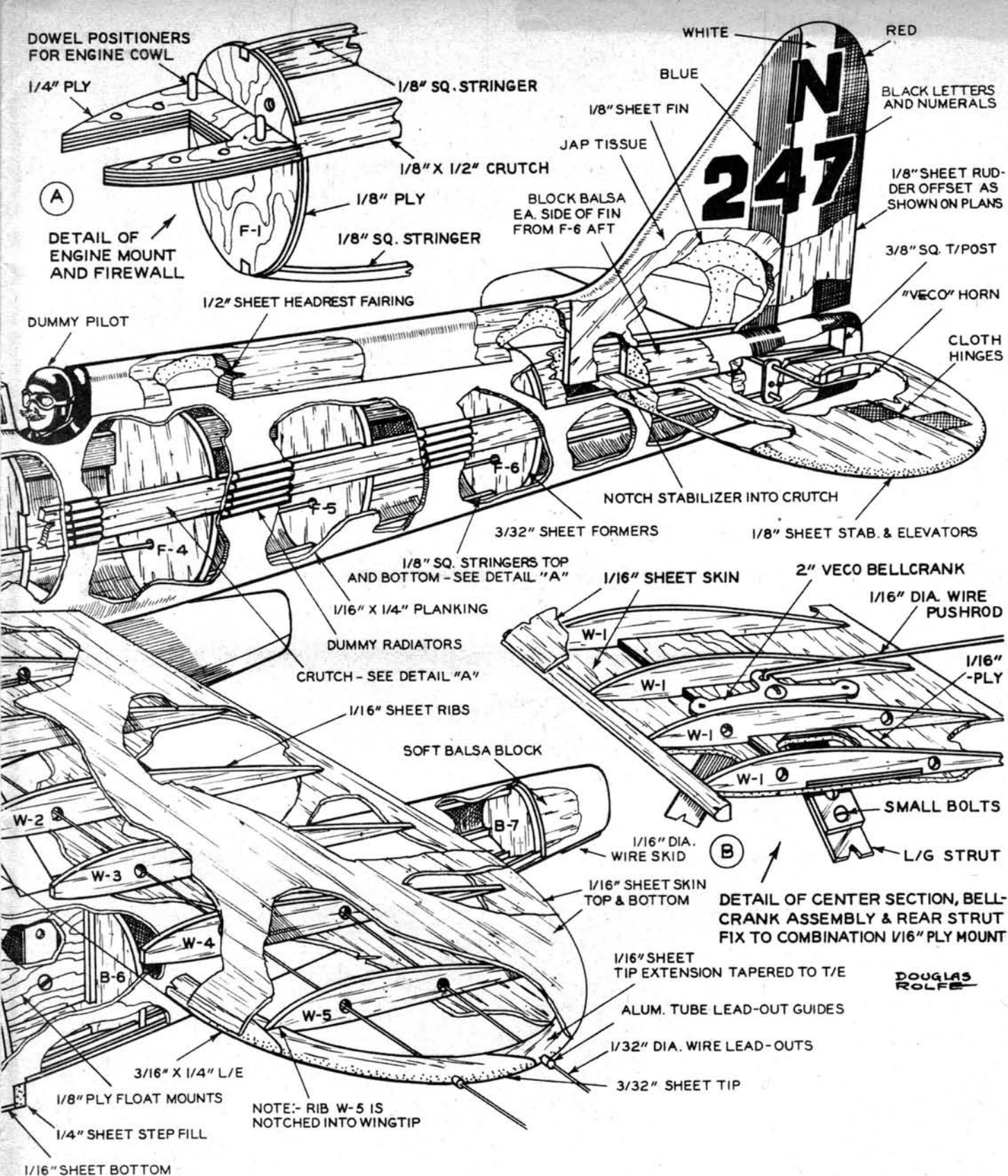


► The Supermarine S-6B, built by the British was first flown July 29, 1931. On September 13, 1931, it won the Schneider Trophy outright (third British win) at 340 mph. The same day this airplane flew 379.05 mph. The engine was a Rolls Royce of 2300 hp. Later they installed a 2550 hp engine and made a record flight of 408 mph.

It is lots of fun to fly the model. It takes off in about 15 to 20 feet. I installed a K&B .09 with throttle controlled exhaust port plus venturi flapper. The throttle was operated by air tube to pilot. This engine has plenty of

power for take-off. This airplane will fly slowly or 50 to 60 miles an hour.

Wing: Construction is somewhat similar to the AJ Fireball. The wing is all wood, consisting of a top and bottom skin of 1/16" sheet balsa and 1/16" sheet ribs. Butt join two lengths of sheet balsa for the top skin, and two more for the bottom. Trim the lower skin blank to the exact outline shown on the plans; trim the top skin with about an 1/8" overhang all around. The upper skin can be more exactly trimmed as you trial fit it in place on the otherwise



assembled wing.

The wing is built flat on the bench but note that the under surface slopes up toward the leading edge. Slide a long piece of 1/16" x 1/4" under the lower skin, just beneath the leading edge, thus holding it up in the proper position. Cement 3/16" square leading edge and tip filler pieces (3/32" and 1/16" thick) in place on the bottom skin. Install the plywood bellcrank mount and the bellcrank. While cementing the ribs in position, make sure the leadout holes are properly located. There is no trailing

edge piece—the top and bottom skins are feathered slightly (side view) to make a good seam.

Take the wing from the bench and, with your razor, taper the leading edge and tip filler pieces, then carefully sand them to the proper mating angles for the top skin. Feather the trailing edge part of the skin where it will meet the top skin. Match the top skin blank, by trimming as necessary with razor and sand paper.

Install the leadouts before closing in the wing. The rear float bracket bolts to (Continued on next page)

the wing bottom before the top skin is installed. Be sure the boltheads clear the bellcrank—file down if necessary, or bend up bellcrank slightly or adjust its spacing with washers. Patterns are given for all the .051 inch thick dural brackets. Now put the lower part of the wing back on the bench and cement the top skin in position. The fast worker may handle this as one operation, but it would be better to start the leading edge, placing cement all along that edge, and well back on the ribs, pinning the skin to it, then, finally, cement and pin the trailing edge together. The tip section may be moistened if necessary when closing in the tip. Another way of making the tip would be to use soft sheet balsa, cut to outline (from last rib out), shaped, and cemented to the last rib. Note the cutout hole for the pushrod. If necessary, cut out skin to clear bellcrank.

To finish the wing, carefully sand round the leading and tip edges, and barely touch up the trailing edge.

Fuselage: The bulkheads are cut to shape from 1/8" sheet balsa (F-1 is 1/8" ply) and are cemented in place between the two long crutch members of 1/8" x 1/2" hard balsa. Top and bottom stringers (on center line) are 1/8" square and serve to align the bulkheads preparatory to covering fuselage with its thin balsa skin—skin is "planking" of 1/16" x 1/4" balsa strips. The 3/8" wide sternport butts against the ends of the crutch pieces. Assembly is easier if the crutch pieces are attached to bulkheads 1, 2, 3 first, then pulled together at the stern post, after which bulkheads 4, 5 and 6 are inserted. A filler piece of 1/8" sheet goes above the wing position, on each side of the fuselage, butting against the crutch piece.

The lower cowl block and the motor mount plate are fitted after planking is done, to make sure they match the true outer contours of the fuselage surface. The wing, with the real float strut bracket attached, is now positioned. After attaching the front float bracket to float mounting block, cement the block in place between bulkheads F-1 and F-2.

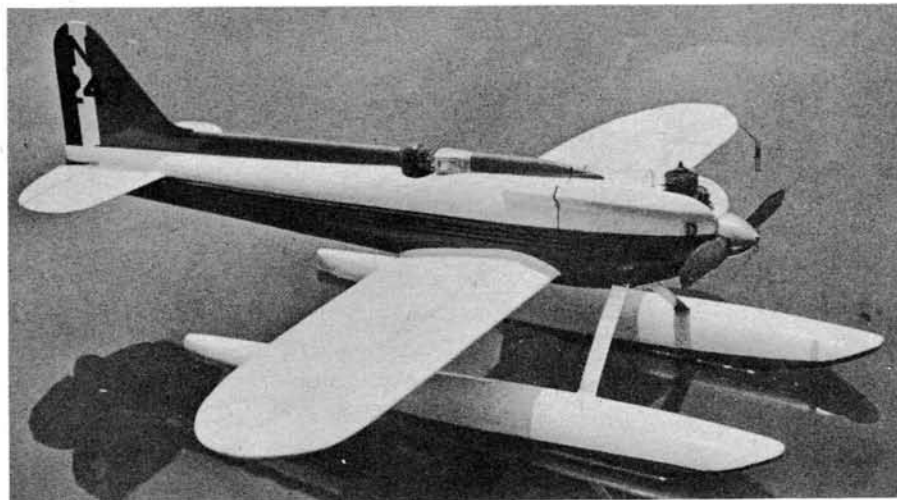
Before planking, install the wing. Note that former F-3 is in two pieces; the lower piece of this former, and the bottom stringer between F-2 and F-4 may have to be removed for the operation, then put back in place after the wing is cemented in position.

Fit a 3/4 ounce capacity tank between F-1 and F-2, attaching neoprene drain and fill tubes. Block in tank with scraps of balsa cemented to framework.

Note that it will be necessary to make and install the stabilizer before planking, in order to install the pushrod of 1/16" music wire. Holes drilled in bulkheads can be used as fairleads to prevent bowing of the rod under load.



Well-pleased designer with his oft-flown 5-6B. Ship is one of many Schneider Trophy racing models flown by FAST club, indoors and out.



To plank, attach one 1/16" x 1/4" strip to each side of the fuselage on top of the crutch piece, then, one by one, add additional strips, side by side. Work both sides of the fuselage simultaneously; when adding one strip on one side, add the corresponding strip on the other. Eventually, it will be necessary to taper the ends of some of the planking strips to fit together.

Carve lower cowl block and cement

against F-1. Cut out horseshoe shaped 1/4" thick motor mount plywood plate. Drill properly spaced engine mounting holes and locate 4-40 blind nuts under plate, then cement plate on top of cowl block. Carve and locate the top cowl block. Fuel proof inside of nose compartment.

The tail surfaces are cut from firm 1/8" sheet balsa, sanded, and the edges slightly

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tapered. Attach flippers to stabilizer with cloth hinges, using a small Veco control horn. Cement the finished horizontal tail on top of the crutch pieces which are cut down to 1/4" depth to take the tail.

The 1/2" sheet head rest that fairs into the fin is shaved and sanded to the required taper and cross section. When the planking has been smooth sanded, cement the head rest-fin in position and match the contour at the rear end of the fuselage with two soft balsa blocks. These blocks fit on top of the stabilizer, one on each side of the fin. The engine fairing blocks and windshield streamline block are shaped, sanded, then matched to the fuselage and cemented in place.

Floats: The floats on the original model were made of 1/16" sheet bent and formed with the bulkheads cemented in place without connecting stringers. The plans show top and bottom stringers, and chine stringers of 1/16" x 1/8" balsa. Build each float as you would a fuselage. If you worry about alignment, cut the top and bottom stringers from sheet balsa, thus insuring the exact curve. Use the profile of the float for a pattern. Cement top and bottom stringers on the bulkheads, then the remaining stringers. Note the plywood plates to which the brackets must bolt.

Sheet cover the floats before attaching the bow and stern blocks are fitted. To plank, begin with 1/16" x 1/2" balsa strips, on the upper halves of the floats, attaching the first strip with its lower edge hanging over the chine as convenient. As each planking strip is cemented on, install a similar strip on the opposite side of the float. As you work toward the top, use narrower strips, such as 1/16" x 1/4", tapering them when necessary, at the ends, to make a fit. Each bottom quarter, forward of the step can be a single piece of 1/16" sheet. Make sure the wood is a pliable grain and, if necessary, moisten it for easy bending. Do the same thing to the rear of the strut. Note that the brackets must be bolted to the plates (2-56 machine screws) before the planking makes this impossible.

Shape and attach the prow and stern blocks, then sand each float to a smooth finish.

Finishing: All surfaces are coated with balsa sanding sealer, and fine sanded. The fuselage, wing, floats are covered with Japanese tissue. Give all surfaces several coats of thinned dope to fill the paper, then use colored dopes as marked for the color scheme. Use one-inch decals on each side of the fin, reading N 247, in black numbers. Use a 1-1/4" aluminum spinner. On the Torp .09 in the original model, a Tornado 8-3 prop was used. Make dummy oil-cooling radiators out of 1/16" sq. balsa, starting from front of plane (not spinner). There are four of these strips, outer edges sanded round.

Flying: If plane dives or does not fly straight at same throttle setting, add weight to spinner; make back of spinner about 1/8" or 3/16" thick. This should be done on a lathe. Use cold-roll or brass. This also helps engine idle better. If airplane does not take off in water 15 to 20 feet, check alignment of floats; they should be parallel within a 1/16".

The motor should idle slowly, otherwise plane will not lose flying speed and you cannot make a good landing. If inner float wants to dig in water in take-off, reduce control line tension. Take-off is made with full up elevator.

Length of control lines is from 17 to 35 feet. At first I suggest 20 foot control lines.

Line length depends on engine used, and, as given, allows for .09 or a .15. If a .19 is used, the flier will have to use his own judgment.