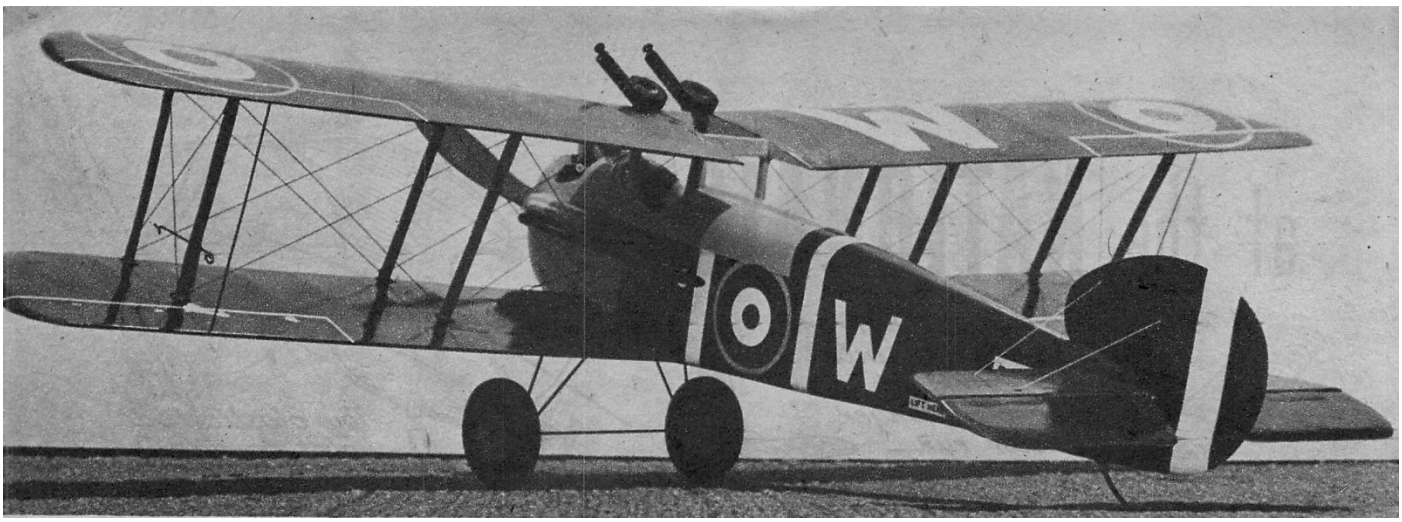
Sopwith Dolphin



Paging ail World War I fans this easily built bipe will make a fine addition to your U control collection. Designer Walter A. Musciano build by Vincent R. Manfredi.

When the famous Spad and S.E.5 fighters began to find it increasingly difficult to maintain aerial superiority against the newer German machines, they were replaced by the negatively staggered Sopwith “Dolphin.” This English design came in 200hp, 220hp and 300hp models. The 200hp model attained a top speed of 131 mph and weighed 1880 lbs. fully loaded. The range was 230 miles and the service ceiling 21,000 ft. Standard armament was two Vickers guns buried in the cowl and firing through the propeller disk, plus two Lewis guns mounted on the upper wing forward spar and firing upward. The latter guns were movable and could be fired almost directly up or at an angle just clearing the propeller. Four hundred Dolphins saw action over 1,000 were built.

All Dolphins were powered with eight cylinder, Vee type, liquid-cooled Hispano Suiza engines. The French as well as the English used the 300hp Dolphin. Our model sports the markings of the Eighty Seventh Fighter Squadron of the Royal Flying Corps. The design designation is 5 F.1 for all Dolphins.

Engines from .19 to .33 cubic inch displacement can be used in this 265 sq. inch model. We used an O&R .23 engine swinging an 8 1/2 /6 propeller, cut down from a 9" prop.

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The 1/8" sheet balsa fuselage sides are cut to shape and the engine mounts cemented to them securely. Cut the bulkheads and cement them in their proper location starting from the rear and working forward. The tail surfaces are cut from 1/8” sheet and sanded smooth. Cement the elevator halves to the hardwood spar and add the control horn. Using crinoline for hinges, hinge the .elevator assembly to the stabilizer and cement the stabilizer to the fuselage.

The bell crank is mounted to the hardwood foundation and the lead out lines are added. Cement this assembly securely to the fuselage sides. Install the control rod now.

Construct the wings one panel at a time as follows: Cut the ribs from 3/32" sheet balsa and cut the space for the joiners on those ribs that require it. Pin the ribs of one panel directly over the plans and add the joiners, leading and trailing edges and tips, cementing all components well. When dry remove from the workbench and repeat the procedure for the opposite panel. Install the 1/4" balsa strut foundations. Block up the wing panel which has already been cemented to the joiners in order not to disturb the panel under construction. Both wings are identical in construction. The framework should be well sanded and all joints re-cemented. They are then covered with light weight Silkspan, with a mixture of cement and dope used as the adhesive. The wings are watered and given three heavy coats of clear dope. Cement the lower wing to the fuselage.

Bend the landing gear to shape and bind the joints with soft, fine wire. We use florist’s wire, purchased at the dime store. Solder all joints securely. Bind the landing gear with strong button or carpet thread to the fuselage supports and apply several coats of cement.

At this time the cabane struts are firmly cemented to the fuselage sides. Notch the top of the struts to fit the wing joiners. The struts must be spaced the same distance as between the wing joiners.

Use soft balsa for fuselage fairing top and nose blocks. Cement lightly to fuselage. The 1/8" sheet bottom is securely cemented in place. When dry the fuselage is carved to shape following the fuselage sections shown. Sand smooth and cut off the blocks.

Hollow to the lines indicated and then re- cement to the fuselage. Sand the fuselage and add the fin and rudder; offset the rudder. Cut holes required for needle valve, propeller shaft and cylinder head.

Apply three coats of wood filler to all wood surfaces, sanding well between each coat. Apply the filler liberally. Our model was painted as follows: The entire lower surface of both wings and stabilizer and elevator plus the after portion of the fuselage are olive drab. All struts plus the nose and fuselage top up to aft of cockpit are medium gray. The fuselage bands and the letters on the top wing and fuselage are white. Serial number is black on a white background. Rudder and wing insignia are red, white and blue. Exhaust stack, propeller and radiators as well as machine guns are black. It is recommended that the lighter colors be applied first in view of the fact that they are easily covered by the darker shades. All insignia, fuselage stripes and markings were applied using Trim- Film.

The assembly is completed with the addition of the top wing. This must be rigidly secured. Attach the inter plane struts to the top wing by pushing the sharpened ends into the strut supporters where the plans show. Apply cement liberally. When dry, the top wing can be added by pushing the struts into the structure provided. The cabane struts allow the plywood joiners to fit into the notch previously cut. Don't spare the cement. Bind and cement the control line guide to the struts closest to inside of the circle. A coat of Comet fuel proofer will protect the model from glow fuels. Add the carpet thread flying and landing wires and we are ready to take off.

The prototype model Dolphin was flown on .012 flying wires fifty feet long and behaved best when it balanced at the point indicated on the plans.

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Bill of Materials—Sopwith Dolphin

Fuselage. 1 ⅛" x 3" x 36" hard balsa, sides, bulkheads & bottom. 1 1" x 2" x 21" soft balsa, nose and top. 1 1/16" music wire, 24" long, landing gear & skid. 1 1/16" music wire, 18" long, control rod. 1 ⅛" x 2" x 5" plywood, firewall bulkhead & landing gear support. 2 ¼" x ⅝" x 4" hardwood, engine mounts. 1 ⅜" x ½" x 2" hardwood, bellcrank mount. 1 1/16" x 2½" x 1" dural, bellcrank.

Wings. 2 ½" x ¾" x 36" medium balsa, leading edge. 2 3/16" x 1" x 36" medium balsa, trailing edge. 1 ¼" x 2" x 6" medium balsa, root ribs & strut supports. 1 ⅛" x 1½" x 11" plywood, joiners. 1 3/32" x 2" x 36" medium balsa, ribs. 1 ½" x 2" x 8" soft balsa, tips. 1 3/32" x 5/16" x 45" hardwood, struts.

Empennage. 1 ⅛" x 2" x 36" balsa, tail surfaces. 1 ⅛" x ⅛" x 11" hardwood, joiner. 1 control horn (commercial).

Miscellaneous. 2 ⅜" Veco wheels, cement, clear dope, colored dope, fuel proofer, (Comet), Trim-Film, bolts, screws, fuel tank, Silkspan, (heavy) dowel, thread, celluloid, aluminum hair curlers, wood filler, brushes, sandpaper, rubbing compound, crinoline.