

# CURTISS SB2C-1

A 15-powered sport model of the uncommon Navy Helldiver.

by PAUL SCHAAF, JR.

THE CURTISS SB2C-1 HELLDIVER served well and diligently during WW II. It was conceived in late 1938 to meet Navy requirements for a new scout/dive bomber aircraft. Early models were plagued with faults such as excessively high stall speed, lack of stability, weak landing gear, etc. However, modifications were made and, after Pearl Harbor in December, 1941, a crash production program was instituted.

A year later, the first SB2C-1 was delivered to the fleet squadron. Another year passed before these Navy bombers first saw combat in an airstrike against Rabaul. The mission was a complete success and the Helldiver finally paid off on its years of development. It weighed five tons and had a 50-ft. wingspread. Approximately 6000 of them were built.

Relatively few models have been made of the SB2C-1, so I decided to have a go at making a U-control model, more in the stunt mode than in scale. The configuration has been kept fairly faithful except for fuselage width, which was reduced to simplify construction.

## Construction

**Fuselage:** The sides are constructed of 1/8" balsa sheet and held apart by 3 formers of 1/8" sheet. The wing slot must be cut out prior to assembly. The top and bottom curvatures of the fuselage are made from balsa blocks, hollowed out to approximately 1/8" wall thickness. The bottom is constructed from 2 blocks, one front and one rear.

The front of the canopy is made from a solid balsa block, but the rear section is constructed of thin cardboard shaped and cemented over two formers (D-D). The canopy frame is made of strips of masking tape painted white before being placed in position.

The rear deck of the fuselage is 3/16" sheet balsa and supports the stabilizer. A balsa block is cored out to about 1/8" wall thickness, notched for the stabilizer, and cemented on top of the 3/16" sheet.

Before the final block is cemented on the fuselage front, the gas tank is installed, using pieces of scrap balsa. The fuel intake line goes through the fuselage top and the vent line goes to the bottom. Drill a hole in former A-A for the fuel line to the engine. All fuel lines must be assembled with the tank and led out of their respective openings before the fuselage is completed. The fuel line to the engine must be the proper size, so that the fuselage does not have to be cut apart to put in the correct one. My tank was a Perfect No. 8 Medium Junior Wedge.



The firewall is made of 1/8" plywood, 1/32" smaller all around than the final finished shape of the fuselage to allow for the cardboard flaps which are cemented to the cowling.

The cowling is carved from a balsa block and hollowed out to accept the engine. It is attached to the fuselage by No. 2 1/2" wood screws which go through the cowling and are fastened to two hardwood 1/4 x 3/8 x 3/8" blocks cemented to the firewall. These blocks must not interfere with the motor or Tatone motor mount.

The engine is mounted at an angle so that the exhaust port comes flush with the outside surface of the cowling, permitting exhaust to leave the model freely.

**Wing:** The wing is slightly more difficult to build because each rib on each panel is a different size (see plan). The leading edge is 1/4" sq. hard balsa; spars are 1/8 x 1/4" hard balsa; and the trailing edge is two strips of 1/16 x 1" balsa cemented together at the rear. Wing tips are from 3/16" balsa sheet stock.

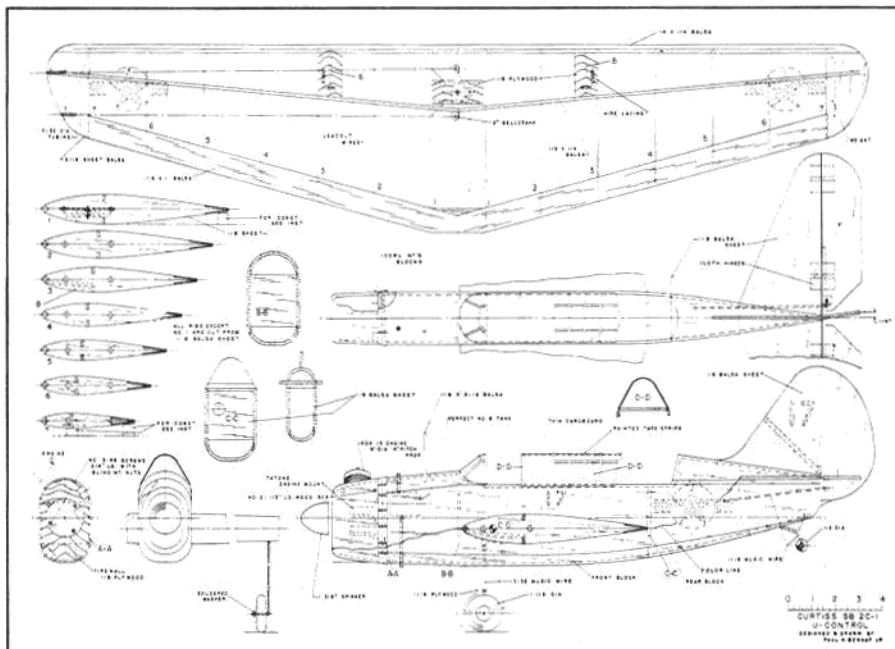
The wing is made in one piece. Wing ribs

are cut from 1/16" sheet, except Rib 1 which is from 1/8" sheet. Before assembly, holes for the leadout wire are cut on the ribs that go in the left panel.

A strip of 1/2" sq. balsa is pinned to the workboard in a V describing the trailing edge position. The lower trailing edge sheet is then pinned at its correct angle to this 1/2" sq. strip. Next, the lower spar is pinned to the workbench so that at Rib 1 it is flush with the surface. (Sandpaper the required angle from Rib 1 to the center of the wing.) At Rib 7, a 5/16" piece of balsa is placed under the spar to provide the correct wing taper by reducing rib height. Both wing halves are built in the same manner.

The ribs are cemented to the spar and the lower trailing edge. Before the cement dries, the leading edge is placed in the rib slots. The leading edge is at one level for the entire wing length. The assembly must be pinned securely while it dries. Then the top spar and top piece of the trailing edge are added. Gusset and filler blocks are added in center area; the

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bellcrank is 1/8" plywood and its gusset plate and the wing tips are 1/8" sheet balsa. Rib 8 is cemented to the landing gear plate to provide an area for wing covering.

Four 2" finishing nails in the outer wing tip provide normal outer wing weight. The wing is covered with Silkspan, except for the center area which is left open to permit cementing the wing to the fuselage before completing hookup of the pushrod to the elevator. Leadout wires and a 2-in. Perfect Bellcrank must be added before covering the wing. Leadout wires pass through 3/32" dia. brass tubing at wing tips. The tubing must be cemented securely since it takes quite a bit of strain during flying.

The 3/32" dia. landing gear wire is attached to the 1/8" plywood panels located on the wing. I sewed the wires to the plywood with soft brass wire and used plenty of Titebond cement.

Finishing: Sand all balsa parts with No. 300 sandpaper. Give the entire model two coats of clear dope and sand again. Give the balsa parts two coats of sanding sealer and sand once again with No. 300 sandpaper. The open area is covered with Silkspan.

The top half of fuselage, where indicated, top of the stabilizer, rudder, and top of the wing are painted dark blue; the lower fuselage surface, underside of the wing, and the stabilizer are painted light grey. Finishing Touch decals are added as shown, together with serial numbers, and two plastic pilot heads. Decorating the model is up to the individual, but it is worth spending some time to do it right. Appearance increases the pleasures of any model.

### **Flying**

The plane is powered by a Fox 15, which pulls it along smartly. The engine is supported by a Tatone short 15 mount, attached to 1/8" plywood by blind mounting screws on the inboard side so that the mount angles out a little for maintaining positive tension on the lines. The engine needs a needle-valve extension. For mine, I soldered a 1/8" dia. section of brass tubing and bent it at right angles past the cowling for easy turning.

The model must be slightly nose heavy so that it is not too sensitive on the lines. I used 52-ft. lines, .012 dia.; 35-ft. lines may be used by those who don't mind turning a little faster.