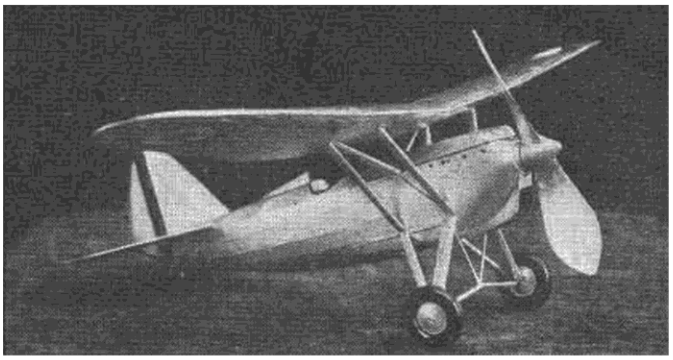
Large tail surfaces give it unusual stability



Detail gives it a realistic appearance

Building the Flying Scale Dewoitine D-535

Complete Data from Which You Can Create a Remarkable Flying Reproduction of a Modern French Fighter

By WILLIAM WINTER

THE Dewoitine D-535, the latest and most sensational of the French fighters, has been developed from the earlier and equally famous fighter parasol of a few years ago.

The power plant is the renowned 500 hp. supercharged Hispano-Suiza. The wing is of cantilever construction tapering both in plan and in form. It is interesting to note that the taper begins at a point over one third the distance to the tip.

This ship can do far in excess of 200 m.p.h. and is capable of climbing 30,000 ft. or more.

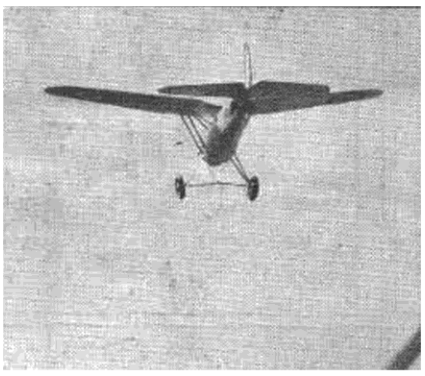
The model is a faithful reproduction of the large ship and because of the parasol design together with many other favorable features that lend themselves favorably to the model, proves to be an exceptional flyer. The finished model not only is pleasing in appearance but affords full satisfaction through the remarkable flights it is sure to make.

Fuselage

The type of construction employed calls for the use of four master stringers. These master stringers are cut from 1/16" sheet balsa. The patterns for them are obtained by tracing the top, side and bottom outlines of the fuselage.

After cutting the master stringers to their required form mark on them the positions of the bulkheads. The bulkheads are also cut from 1/16" sheet. Cement the two side master stringers in place on three of the widest bulkheads. As soon as the cement has set, place the remaining bulkheads in position. The top and bottom master stringers are now glued in place. The auxiliary stringers are 1/16" sq. slightly sanded. They are assembled as required by the plans. The rear hook of .028 wire is bent to shape and imbedded in a rudder post of ⅛"x¼". The cockpit is formed by bending 1/32" sheet. The sheet is cemented in position and allowed to dry before the cockpit outline is cut.

At the nose of the ship there are three blocks; the upper nose block, the nose block proper and the gas tank block. All of these blocks are first cut to the outside required dimensions from soft balsa. The several cross sections necessary for their shaping are given on the plan. The blocks once shaped are roughly hollowed out as shown by the broken lines on the plan. If you find it difficult to hollow them down as far as required, hollow the more accessible portions to about 3/16" thickness leaving the corners thicker. Assemble the finished blocks as shown on the side view. The tank block is not supposed to match the contour of the fuselage perfectly but curves abruptly at the rear to meet the stringers.



In full flight, its steadiness and appearance is unexcelled

The stabilizer fillet block, the size of which is given on the plan, is cut to match the continuation of the fuselage lines. One section is shown on the plan to assist this operation. Note that each side of this block is carved to match the cross section of the stabilizer half.

The section of the fuselage frame between numbers 1 and 2 bulkheads, and between the top nose block and the gas tank block is covered with 1/32" sheet. In making the original cement was rubbed over the entire nose assembly, allowed to dry, and then sanded so that the wood would present a good finish for painting. A piece of 1/16" sheet is inserted beneath the stringer that supports the rear center section strut as shown on the side view.

To cover the fuselage, use narrow strips of Jap tissue cut to a width required by the particular curve to be covered. The finished covering is evenly sprayed and doped.

The windshield is of celluloid and is cemented in the position shown on both the top and side views. The headrest is cut to the required size seen on both top and side views, and cemented in position.

The finished fuselage is painted silver. The edges of the cockpit are trimmed black. Bronzing liquid and silver powder are suggested if a neat job is to be done.

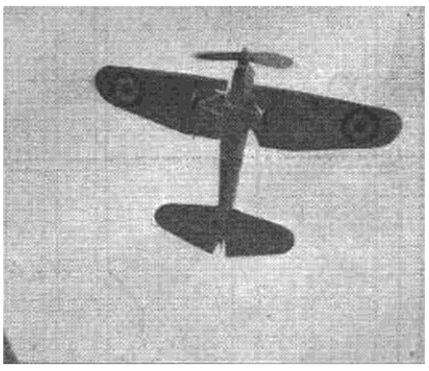
Tail Surfaces

The main spars of both stabilizer and rudder are 1/16"x3/16". The cross pieces are cut to size from 1/32"x3/16". The curved portions are 1/16" sq. bamboo bent around a candle flame to the desired curve. The scalloped portions of the trailing edges of both surfaces are cut from 1/16" hard sheet balsa. The scallops are made with fine sandpaper. Note that the first cross piece of both stabilizer halves and the rudder is also 1/16"x3/16" to prevent "pulling."

Use one piece of tissue for each side of each surface unit. Doping is sufficient to draw the covering taut.

The completed tail unit is assembled to the fuselage. Use thickened cement for this operation to facilitate the work. The

(Continued on page 44)



The model snapped while flying overhead shows its proportions well

Building a Flying Scale Dewoitine D-535

(Continued from page 15)

stabilizer brace is streamlined from 1/16"x⅛" stock.

The stabilizer is silver. The fin is silver but the rudder portion is left white so that only the red and blue rudder stripes need be painted. The elevator and rudder hinge lines are designated by thin strips of black tissue doped or cemented to the surface.

As this is a French job, the usual circles and stripes are reversed; i.e., the center of the insignia is blue instead of red, the outer circle being red.

Landing Gear and Skid

The struts are all shown full size on the plan. The front landing gear strut is streamlined from a piece of ⅛"x½" stock. The others are all ⅛"x¼" as is the spreader bar. Bamboo pegs are inserted in the lower ends of the main landing gear struts. The spreader bar is forced on these pointed pegs as seen on the side and front views. When cementing the struts to the fuselage, use pins to hold the work in position. The axles are of .028 wire and are bound in place as well as cemented. The wheels are 1½" in diameter.

The shoe of the tail skid is a flat piece of bamboo bent as shown in the side view. A straight pin is forced through the shoe and a rounded piece of ⅛" balsa also visible on the side view. The upper end of the pin is then bent so that it can be sunk in the rudder post. The whole skid unit is cemented.

Wings

Cut the main spar from 1/16" sheet to the shape required by the pattern superimposed on the wing plan. Using the rib pattern given, cut all the ribs with the exception of the two noted from 1/32" sheet. The two ribs excepted are cut from 1/16" sheet. The leading edge is half rounded ⅛" sq. The trailing edge is ⅛"x¼" scalloped as shown. The wing tips and the center section cut out are of 1/16" sq. bamboo bent around a candle flame. Two parallel strips of 1/16"x⅛" are built into the lower surface of the center section as shown. A piece of 1/16" sq. is built into the upper surface as seen on the wing plan after the dihedral has been incorporated in the structure so that the dihedraled portions of the wing will retain their proper angle.

Note that the wing is cracked for dihedral at the center line. The taper in the wing starts at the third rib out. Both the top and bottom surfaces of the wing are tapered or sloped from this point. The dihedral measured at the third rib is ⅜".

To cover use separate pieces of tissue for each of the inclined or tapered surfaces on the top of the wing. The bottom of the wing is covered with one piece.

The wing is entirely silver in color. Designate the aileron lines by the use of black tissue.

Center Section Struts

All the center section struts are streamlined and cut to size from ⅛"x¼" stock. The lower ends of the outer struts have bamboo pegs inserted in them. When assembling the finished center section struts, force these pegs into the upper end of the landing gear struts. Use pins to hold the struts in position when cementing them to the fuselage. Note that there are inner struts at the rear only. These struts and the outer struts at this station form a pyramid.

The wing is temporarily pinned to these struts so that the assembly can be checked for alignment. A slight correction is made by trimming the excess strut length with a razor. A major error naturally calls for realignment of the struts to be used or the substitution of a new strut for the one that is causing the trouble.

Propeller and Motor

The nose plug as shown in the detail is made by laminating a piece of ⅛" sheet and a piece of 3/32" sheet. The ⅛" sheet fits within the circular opening in the nose block. Two key pieces are cut from ⅛" sq. stock. These keys fit slots cut in the front of the nose block.

The propeller is cut from a block 8"x1½"x1". The main cone is carved intergal with the block. The tips are not rounded until the blades have been carved. The finished propeller should balance perfectly. The shaft of .028 music wire is bent to shape at the propeller end and imbedded in the face of the hub. Cut two tin bearings in accordance with the patterns given and bend them to shape. One is forced into the face of the nose plug the other into the rear of the propeller hub. Place a loose washer and the nose plug on the shaft and bend the rubber hook.

The motive power normally is six strands of ⅛" flat rubber.

Flying the Model

Test the model over deep grass if possible. As an alternative, test it on a few turns R.O.G. As the proper balance is attained increase the turns gradually to capacity. A small piece of lead is used if necessary for balancing.

The test flights of the original model were far beyond expectations. The Dewoitine parasol design makes a perfect flying model as you will agree when your ship reaches the test stage.

Bill of Materials

1—1/16"x2"x36" sheet balsa
1—1/32"x2"x24" sheet balsa
1—1 1/16" sq.x ⅛" sheet balsa
1—1 1/16" sq.x3/32" sheet balsa
1—1/16"x3 16"x24" strip balsa
2 ⅛"x⅛"x36" strip balsa
1—⅛"x⅜"x6" strip balsa
1 1/16"x3/16"x24" strip balsa
2—1/32"x1/16"x24" strip balsa
1—⅜" sq.x24" strip balsa
1—⅛"x1/16"x24" strip balsa
1—3 7/16"x⅜"x9/16" block balsa
1 2"x2⅜"x2½" block balsa
1—3⅜"x1⅜"x11/16" block balsa
1—2⅜"x1⅜"x⅝" block balsa
1—1⅜"x⅜"x⅝" block balsa
1—8"x1½"x1" block balsa

Miscellaneous

1—1 oz. cement
1—2 oz. clear dope
2—sheets superfine tissue
1—pr. 1½" wheels
6 ft. ⅛" flat rubber
1 ft. .028 music wire
2—1/16"x¼" flat bamboo
scrap celluloid
silver bronze powder and liquid, or silver dope
4—2½" French circles