



Mike Hollison has taken an early vintage German sailplane which was a contest winner and record breaker in the late thirties, and created a Stand-Off Scale model which flies great.

easy to fly scale ship capable of being launched by a hi-start, so that the modeler could enjoy scale soaring on a regular Sunday fun-fly basis. The Rhonsperber has also been flown very successfully on the slope and is equally at home in slope lift as it is in a thermal. Construction is of the traditional balsa and ply variety, controls are rudder and elevator only, and the whole project should prove no harder to build than the average standard class sailplane.

CONSTRUCTION

Start with the wings, building each in two sections as one would a polyhedral ship, and beginning with the inboard panel.

1. Cut the leading edge and bottom spruce spar to length and lay them out over the plan. Then cut the trailing edge to size, slot for wing ribs and position in place. Cut out all the wing ribs (two of W5) and glue ribs W4 in place. Glue the top spruce spar in position, then add W1, using the template to establish the correct dihedral angle.

2. Fill in the gap between the W3 rib location and W4 with 1/4" balsa shear webbing between the top and bottom spars. Next, cut the forward wing brace W16 from 1/16" ply and epoxy between W1 and W4. Cut the 1/4" o.d. brass tubing to length and epoxy in place between W1 and W3 with microballoons as indicated on the plan, using a piece of scrap balsa to

SCHWEYER

RHONSPERBER

The Rhonsperber was a gull winged German sailplane, first flown in 1935, and developed by Hans Jacob, the designer of such famous gliders as the Rhoadler and Rhonsbussard thermal ships of the early thirties. For three years, the Rhonsperber was the leading German glider in contests and record breaking flights, with two world record long distance flights to its credit, the first sailplane flight over the Alps and, in 1937, a new world height record of 18,890 ft.

The model Rhonsperber was conceived as a simple, easy to build,





By Mike Hollison

raise the end of the tubing to the correct angle. Epoxy the rear wing brace W16 in place, cut ribs W2 and W3 in half and glue them in position.

3. Cut two polyhedral braces W17 from 1/16" ply and epoxy to the wing, remembering to sandwich a piece of 1/4" shear balsa webbing between them. Cut rib W5 in half, and glue in place. Next, add the 1/16" balsa webs between ribs W5 and W4, the 1/4" x 1/8" spruce sub spar, and a length of 3/32 i.d. brass tubing between W1 and W2 for the rear wing alignment pin. Strengthen this with strips of scrap balsa as indicated on the plan.

4. Sheet top and bottom of the wing panel with 1/16" balsa as shown, and cut the root rib from 1/16" ply, drill for wing rods, and epoxy to W1. Repeat steps 1 to 4 for the other inboard section.

5. Now start work on the outer wing panel by cutting leading edge, bottom spruce spar and trailing edge to length, slot the T.E. for the wing ribs and lay out over the plan. Glue ribs W6 to W15 in place, then add the top spruce spar.

6. Glue the 1/16" balsa shear webbing between W7 and W13, noting that the forward webbing between ribs W11 and W13 is omitted. **Important:** Ensure that the trailing edge wing tip is raised 1/4" so that washout is built into the wing.

7. Cut the wing tip from 1/16" balsa and glue in place, bracing it with 1/8" balsa triangles as shown. The 1/16" balsa gusset can also be added at this stage as can the 1/4" balsa webbing between the top and bottom spars at the W17 location.

8. Epoxy the outboard wing panel to the completed inboard, ensuring that the polyhedral angles are correct. The inboard panel should be raised 4 1/2" above the horizontal at W5 while the wing tip should be 10 1/4" above the horizontal.

9. Cut rib W5 in half and glue in place and add the 1/8" sq. balsa top spar between W5 and W15. Repeat steps 5 to 9 for the second wing panel. This completes the basic wing construction.

Fuselage:

1. Cut the fuselage sides and formers F3 and F5 to F8 from 1/8" sheet balsa. Using contact cement, glue 1/32" ply doublers forward of F4 and epoxy a 1/8" ply strengthening plate at the main wing rod position. Drill the fuselage sides for the wing rod, trailing edge alignment pins, and the wing retaining hooks. **Note:**

SCHWEYER RHONSPERBER

Designed By:

Mike Hollison

TYPE AIRCRAFT

Stand-Off Scale Sailplane

WINGSPAN

99 Inches

WING CHORD

8" Root — 4 1/2" Tip

TOTAL WING AREA

668 1/2 Sq. In.

WING LOCATION

Shoulder

AIRFOIL

Semi-Symmetrical

WING PLANFORM

Constant Chord Ctr. Sec.

Double Tapered Tip Panels

DIHEDRAL EACH TIP

10 1/4 Inches

OVERALL FUSELAGE LENGTH

40 3/4 Inches

RADIO COMPARTMENT SIZE

(L) 7 3/4" x (W) 2 1/2" x (H) 2 1/2"

STABILIZER SPAN

20 Inches

STABILIZER CHORD (inc. elev.)

5 1/4 Inches (Avg.)

STABILIZER AREA

95 Sq. In. (Approx.)

STAB AIRFOIL SECTION

Flat

STABILIZER LOCATION

Top of Fuselage

VERTICAL FIN HEIGHT

8 1/2 Inches

VERTICAL FIN WIDTH (inc. rud.)

6 1/4 Inches (Avg.)

REC. ENGINE SIZE

NA

FUEL TANK SIZE

NA

LANDING GEAR

NA

REC. NO. OF CHANNELS

2

CONTROL FUNCTIONS

Rudder & Elevator

BASIC MATERIALS USED IN CONSTRUCTION

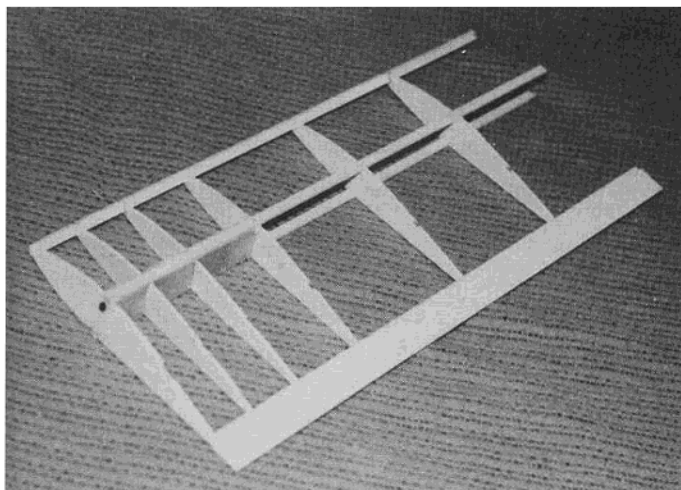
Fuselage Balsa & Ply

Wing Balsa & Spruce

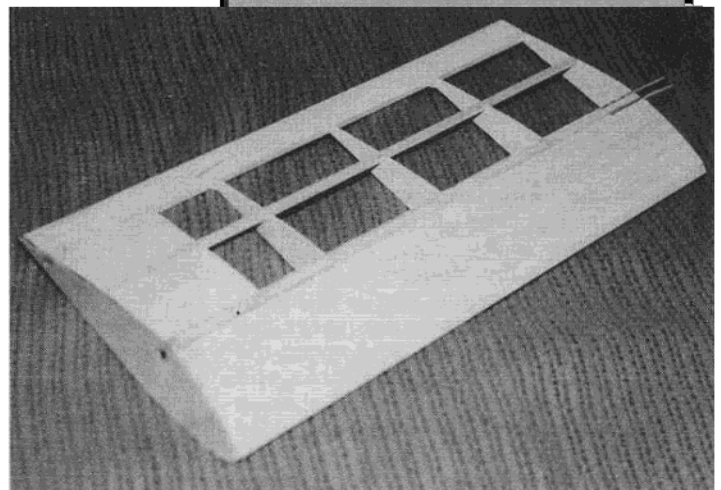
Empennage Balsa

Wt. Ready To Fly 48 Ozs.

Wing Loading 10.3 Oz./Sq. Ft.



Basic wing center section structure with 1/4" o.d. brass tubing in place for wing attachment.



Completed center wing panel with top sheeting and polyhedral braces installed.

Observe that the true position of the rear alignment pins is below the projected position on the plan. This is because the fuselage sides slope inwards. Glue 1/4" sq. balsa strips to the bottom of the fuselage sides between F1 and F4.

2. Cut former F1 from 1/4" ply, F2 and F4 from 1/8" ply, and drill the last two for pushrods, antenna tube, and servo leads. Epoxy F2 and F4 in place, then add F1 and pull the rear of the fuselage sides back together, and epoxy, after first sandwiching the rudder hinge between them. Finally, glue formers F3 and F5 to F9 in position.

3. Carve the forward bottom sections of the fuselage from soft balsa block, cutting a slot in the bottom between F2 and F3 for a cut-down Airtronics tow bar. Epoxy a 1/2" x 1/2" x 2" long pine strip into the slot and drill for tow hook bolts. Cement the fuselage bottom in place.

4. Glue the top fuselage spine between F5 and F9. Cement a 2 1/2" long tapered sheet of 1/4" balsa to the bottom rear fuselage, and then glue the bottom fuselage spine between it and F6. Epoxy the rudder and elevator pushrod outer tubing in position, sheet the bottom of the fuselage aft of F6 with 1/16" balsa, and add the antenna tube. Finally, sheet the fuselage top aft of F5, and glue the 1/8" balsa triangular stabilizer platform in place.

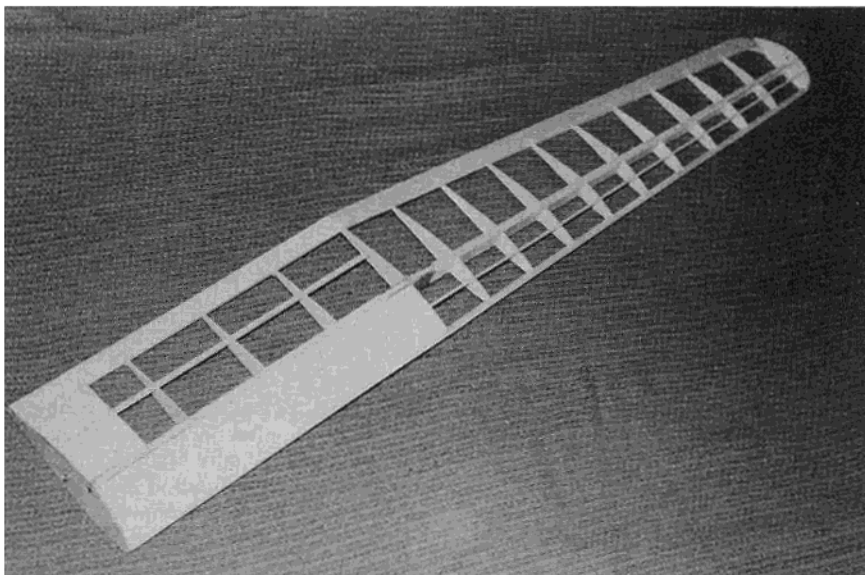
5. Carve the forward top fuselage decking from soft balsa block and secure to the fuselage with dress snap fasteners as shown on the plan. Now carve the nose block from balsa and pine as indicated, and sand the whole fuselage smooth.

6. Cut the main wing rod to length, similarly the two rear alignment pins, and attach the wings to the fuselage. Carved balsa fairings can now be custom fitted to the fuselage so that no gaps appear between wing root and fuselage side. Remove the wings and glue the carved balsa tail skid in place. This completes the basic fuselage structure.

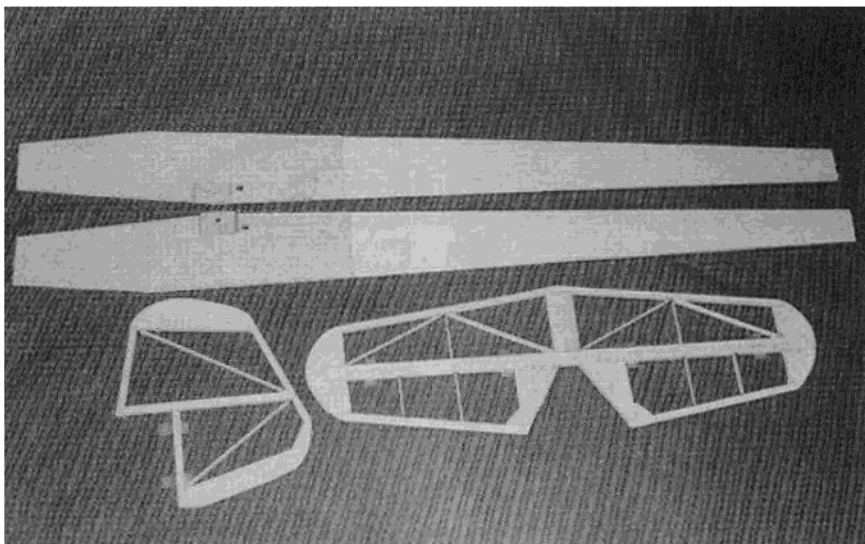
7. The stabilizer and tailfin are built directly over the plan and should require little or no description, as most builders will have their own favorite method of constructing built-up tail surfaces.

Finishing the Model:

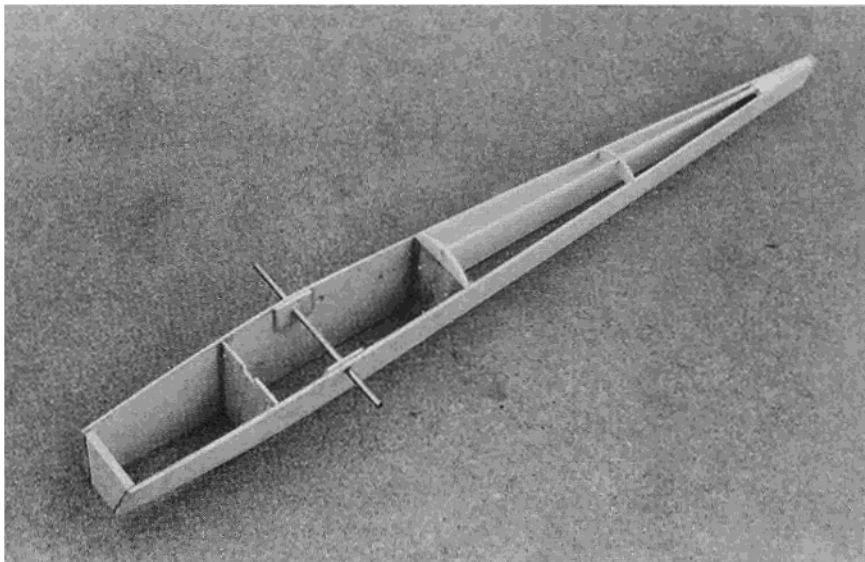
All that remains now is to install the two function radio, cover the fuselage and wings, and epoxy the covered stabilizer/elevator and fin/rudder units in place. I chose a cream MonoKote covering, then added German registration and a pre-WW II swastika on the rudder. Next, epoxy a cut-down Sig 10" canopy, and Williams Brothers pilot to the top



Completed inner and outer wing panels ready to be joined together.



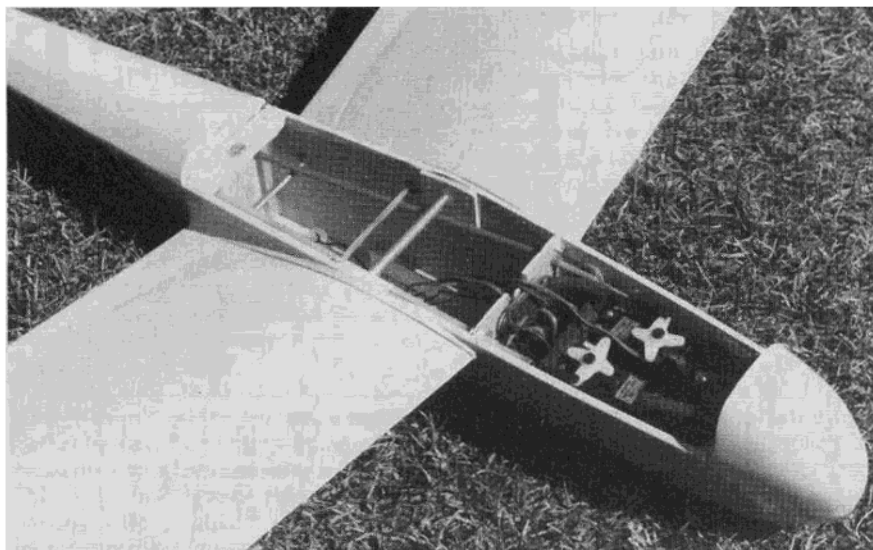
1/8" balsa fuselage sides with 1/32" plywood doublers and 1/8" wing rod plates installed. Stab, elevator, and rudder are all built directly over the plans.



Basic fuselage structure with F1, F2, and F4 plywood formers glued in place. Formers F5, F7, and F9 are also glued in place as is the 1/8" x 1/4" balsa spine.



All fuselage top and bottom blocks and sheeting in place, and rough shaped; ready for nose block installation, shaping, and rough sanding.



Hatch removed showing radio installation.



With its graceful gull wing and clean simple lines, the Rhonsperber is as beautiful on the ground as it is in the air.



Completed model ready for flight. Trim tape and MonoKote trim sheet used for detail.

fuselage block, plus some form of skid to the bottom of the fuselage (I used an old Airtronics Aquila skid). Add the necessary elevator/rudder control horns, balance as shown on the plan, and your Rhonsperber is ready for the flying field! Remember don't forget to use a good, strong rubber band between the two wing panels to hold them in place on the fuselage when flying!

Flying:

This is the fun part. The Rhonsperber was built to fly off a hi-start and that's exactly what it does. Get a friend to launch it for that all important first flight, but make sure he or she knows how to launch a sailplane! Use a javelin-type throw to build up as much speed as possible, never simply let go of the model; the Rhonsperber has narrow wing tips and even with the 1/4" washout, the model will tip stall if the initial launch is too slow. Once in the air, however, she will climb straight and true, and upon release can be slowed down considerably without any tendency to drop a wing. In fact, the Rhonsperber performs very much like a beginner's two-meter ship, gently and forgiving, and that gull-wing is a pleasure to watch as she circles lazily above one's head.

Happy thermalling! □