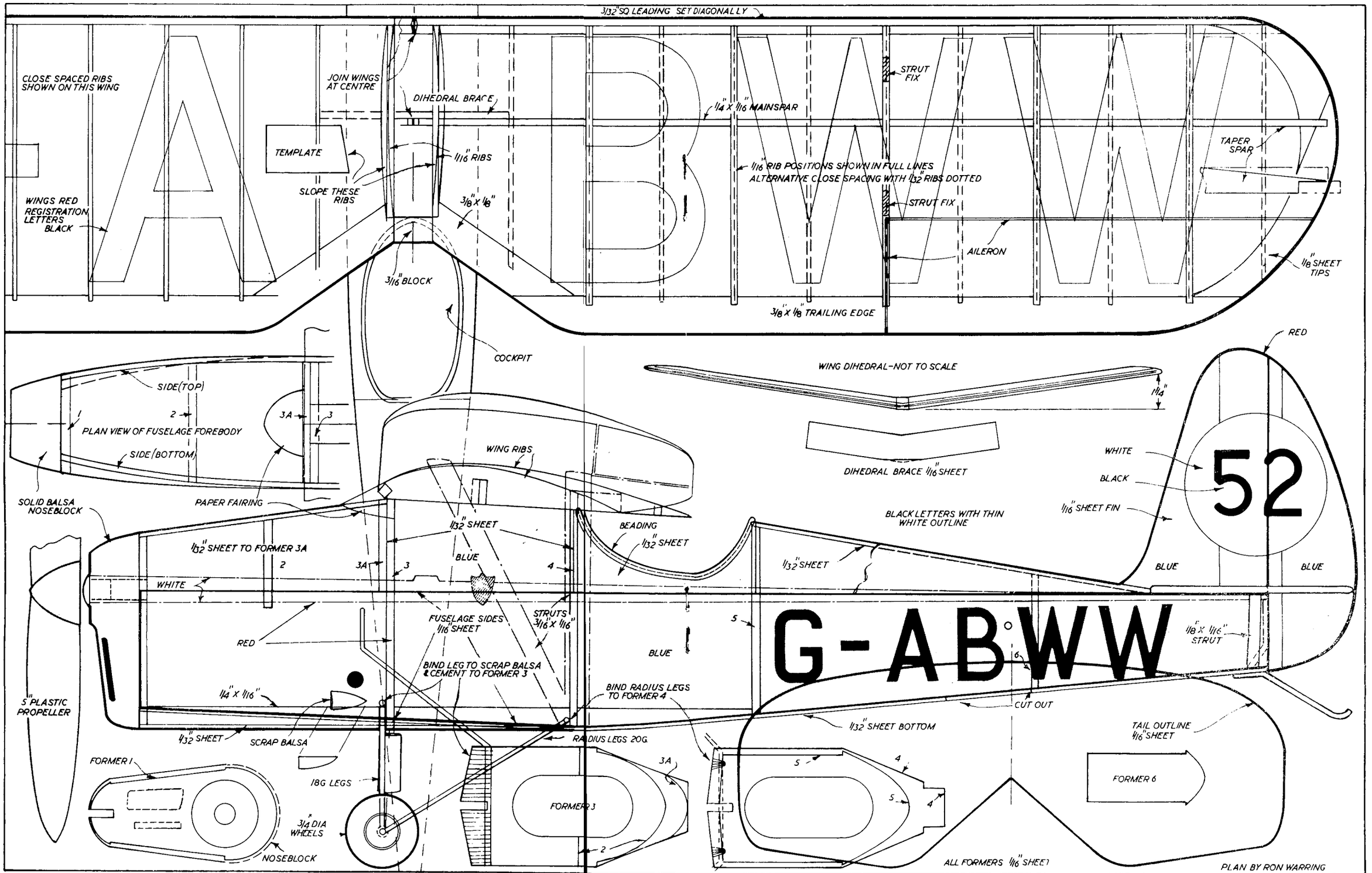

3/32" SQ LEADING SET DIAGONALLY
CLOSE SPACED RIBS SHOWN ON THIS WING
JOIN WINGS AT CENTRE
DIHEDRAL BRACE
STRUT FIX
1/4" X 1/16" MAINSPAR
TEMPLATE
1/16" RIBS
SLOPE THESE RIBS
3/8" X 1/8"
1/16" RIB POSITIONS SHOWN IN FULL LINES
ALTERNATIVE CLOSE SPACING WITH 1/32" RIBS DOTTED
TAPER SPAR
WINGS RED REGISTRATION LETTERS BLACK
STRUT FIX
AILERON
1/8" SHEET TIPS
3/16" BLOCK
3/8" X 1/8" TRAILING EDGE
COCKPIT
WING DIHEDRAL-NOT TO SCALE
1 1/4"
SIDE(TOP)
PLAN VIEW OF FUSELAGE FOREBODY
SIDE(BOTTOM)
DIHEDRAL BRACE 1/16" SHEET
WING RIBS
WHITE
BLACK
1/16" SHEET FIN
RED
52
SOLID BALSA NOSEBLOCK
PAPER FAIRING
1/32" SHEET TO FORMER 3A
1/32" SHEET
BEADING 1/32" SHEET
BLACK LETTERS WITH THIN WHITE OUTLINE
1/32" SHEET
BLUE
BLUE
BLUE
WHITE
FUSELAGE SIDES 1/16" SHEET
STRUTS 3/16" X 1/16"
RED
BLUE
G-ABWW
1/8" X 1/16" STRUT
BIND LEG TO SCRAP BALSA & CEMENT TO FORMER 3
BIND RADIUS LEGS TO FORMER 4
5" PLASTIC PROPELLER
1/4" X 1/16"
CUT OUT
1/32" SHEET BOTTOM
TAIL OUTLINE 1/16" SHEET
1/32" SHEET
SCRAP BALSA
RADIUS LEGS 20G
FORMER 1
18G LEGS
FORMER 3
FORMER 6
3/4" DIA WHEELS
NOSEBLOCK
ALL FORMERS 1/16" SHEET
PLAN BY RON WARRING

FULL SIZE PLANS FOR A SIMPLE RUBBER MODEL OF THIS FAMOUS KING'S CUP AIR RACE MACHINE

The Comper SWIFT

THE first Comper *Swift* appeared in 1929, built by the short-lived Comper Aircraft Company of Hooton, Cheshire, and the design was a popular favourite for racing in the early 1930s. Although only 37 *Swifts* were actually built, it appeared in two forms—one with a 90 h.p. Pobjoy Niagara radial engine, and the other with the 120 h.p. in-line Gipsy III. Two of the former type survive to this day in this country, whilst a Gipsy engined *Swift* is still believed to be airworthy in Australia.

When it appeared, the Comper *Swift* was claimed to be the smallest light aircraft in the world, and also the fastest. Its price, with Pobjoy engine, was £550. Enthusiastic owners bought it chiefly for racing, where it was invariably handicapped near the "scratch" mark. Our model is based on the Gipsy-*Swift* owned by the then Prince of Wales, which placed second in the 1932 King's Cup Air Race at an average speed of 155.75 m.p.h. There were, as a matter of interest, eight Comper *Swifts* in this race out of a field of 42.

For best performance, choose the lightest sheet available for the model. The fuselage sides are cut from $\frac{1}{16}$ in. sheet of normal straight-grain variety. The fin and tailplane should be cut from really light quarter grain $\frac{1}{16}$ in. The decking and bottom of the fuselage are covered with $\frac{1}{32}$ in. sheet and since this has to be bent into a curve, the selected sheet for this should *not* be quarter grain.

Make a careful tracing of the exact shape of the fuselage sides from the plan and cut two identical pieces from $\frac{1}{16}$ in. sheet. Similarly transfer the former drawings to $\frac{1}{16}$ in. sheet and cut out. Mark the positions of the formers on the sheet sides and begin assembly with formers 3 and 4. Former 3A can be cemented to former 3 at this stage.

Now pull in the nose and fit former 1, holding the sides in place with pins or a rubber band. Join the fuselage sides at the rear with a clamp (or pin again) and check that the fuselage is true. Formers 5 and 6 can then be sprung in place, also former 2. The latter is a half-former only and locates in small slots in the fuselage sides.

The bottom stringer ($\frac{1}{4} \times \frac{1}{16}$ in.) can now be fitted between formers 1 and 5. When set, this is trimmed to conform to the upsweep of the fuselage bottom between formers 4 and 5. The undercarriage should be fitted next. The main legs are bent from 18 S.W.G. wire and the radius legs and oleo legs bent as one from 20 S.W.G. wire (see finished sketch). The main legs are bound to scrap balsa trimmed to fit the bottom of former 3 and then cemented in place. Bind the radius legs to former 4. The whole of the bottom can then be covered with $\frac{1}{32}$ in. sheet, in two pieces (joining on former 4).

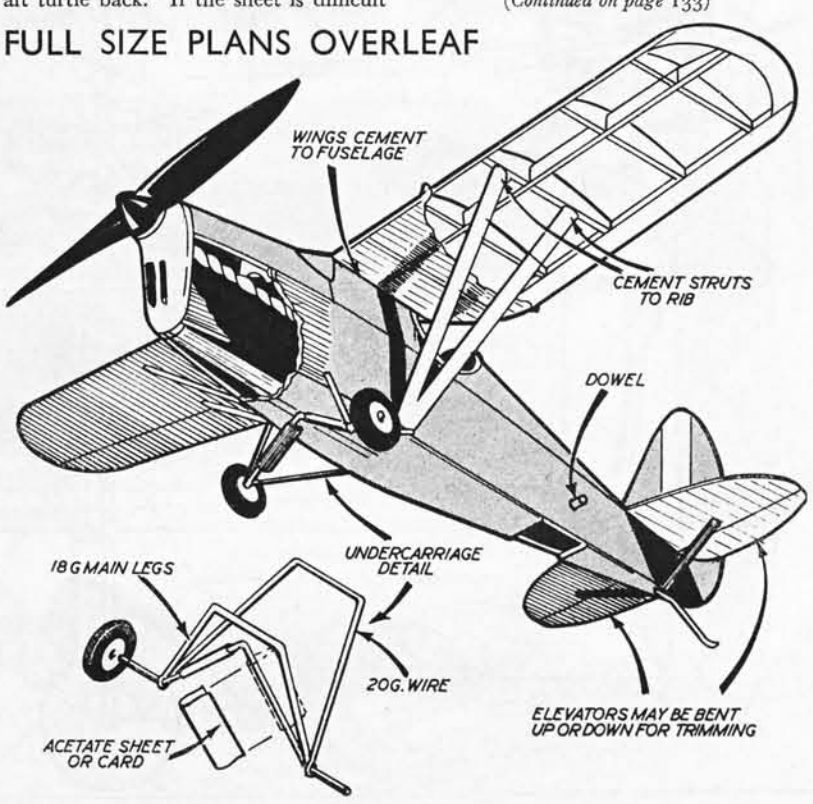
The top covering is again $\frac{1}{32}$ in. sheet, but applied in four pieces. First cover between former 1 and 3A. Then between 3 and 4, 4 and 5 and finally the aft turtle back. If the sheet is difficult to bend to the required curve, dampen it well with water first. Pin or bind in place but do not cement yet. When it is dry, then remove and cement it back in place permanently. If you try to cement wet wood it will not stick properly.

The fin and tailplane are simply cut out of $\frac{1}{16}$ in. sheet to the full size outlines given. The tailplane cements on top of the rear fuselage. Then add the fin and check that the assembly is true and square. The edges of the tail and fin should be lightly rounded with sandpaper. Finish this assembly by adding the tail bracing strut.

The wings are a straightforward built-up job. First decide on whether you want to use wide spaced ribs for ease of construction ($\frac{1}{16}$ in. ribs throughout), or closed spaced $\frac{1}{32}$ in. ribs for a more scale-like structure. Having decided, mark the appropriate rib positions on the trailing edge and notch to a depth of about $\frac{1}{16}$ in. with a file. Sand the

(*Continued on page 133*)

FULL SIZE PLANS OVERLEAF



The easy-to-build COMPER SWIFT

Continued from page 123

trailing edge to section, then pin over the plan. Trim the tip end of the mainspar and pin this over the plan. Then add the ribs, tip pieces and finally the leading edge. To build the left wing, make a tracing of the plan given, or assemble on the back of the right wing which you have just completed.

The wings are joined at the centre with a dihedral brace and the gap between the trailing edges at the root filled with a small piece of $\frac{3}{16}$ in. sheet (this can be laminated from scrap $\frac{1}{8}$ and $\frac{1}{16}$ in. sheet, if necessary). Check that you have the right amount of dihedral before letting the wing joint set. The wings should be sanded smooth and covered and doped before fitting to the fuselage.

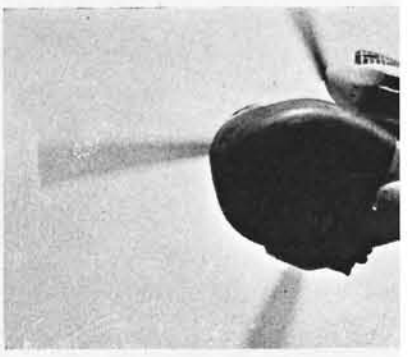
The wing simply cements on top of the fuselage between formers 3 and 4. The projecting top of former 4 passes through the wing covering to cement against the trailing edge block, but trim it to exact size first. The wing/fuselage joint is considerably strengthened by the addition of the wing struts, so fit these carefully and make sure that they are really cemented to the wing rib and not just to the tissue covering. If in doubt, pierce the covering in this region with a pin to let cement soak through to the rib. To finish off the wing joint, fit the stiff paper leading edge fairing which covers the change in section between the rounded top of former 3A and the square top of former 3.

The colour scheme on the original aircraft G-ABWW was a blue fuselage with a tapering white dividing line down it, and the bottom cowling red. Registration letters on each side of the fuselage were black with a thin white outline. The fin was blue with a vertical stripe of red, as shown on the plan. The large white circle with the painted number was the racing number allotted for the 1932 King's Cup Air Race. Wings and tailplane were red, with black registration numbers on the former.

If this colour scheme is adopted, use red tissue to cover the wings and tail. This will work out much lighter than coloured dope. Similarly cover the fuselage and fin with blue tissue. The white line can be painted on with dope, or cut from a transfer strip. The red bottom cowling should be doped to colour, but a transfer is suggested for the fin stripe.

Power required will depend on the finished weight of your model—and what sort of performance you are aiming at. The *Swift* can be used as a racer for fast, short duration flights by trimming out slightly under elevated (or using a generous amount of downthrust) and warping more pitch into the plastic propeller by heating and twisting. Four strands of $\frac{1}{4}$ in. strip is about the limit of power.

For maximum duration you want the lightest possible model. For best results, too, you should use a 6 or 7 in. diameter propeller, when the undercarriage will have to be lengthened accordingly. A single loop of $\frac{1}{4}$ in. strip (or even $\frac{3}{16}$ in. rubber) should be adequate, unless the model is unduly heavy. Slight washout on each wing tip will improve stability and the model should not be adjusted to fly in tight circles.



JUST A PLAST

No flying saucer, the object on page 108, as can be seen from the photo above, is the nose of the new HR2S-1W version of Sikorsky's twin-engined S-56 helicopter. Inside the huge plastic fairing is a radar scanner of the type fitted in the familiar "guppy" early warning radar versions of aircraft like the *Skyraider* and *Super Constellation*, and there is plenty of room for equipment and

The model ready for final cleaning up.