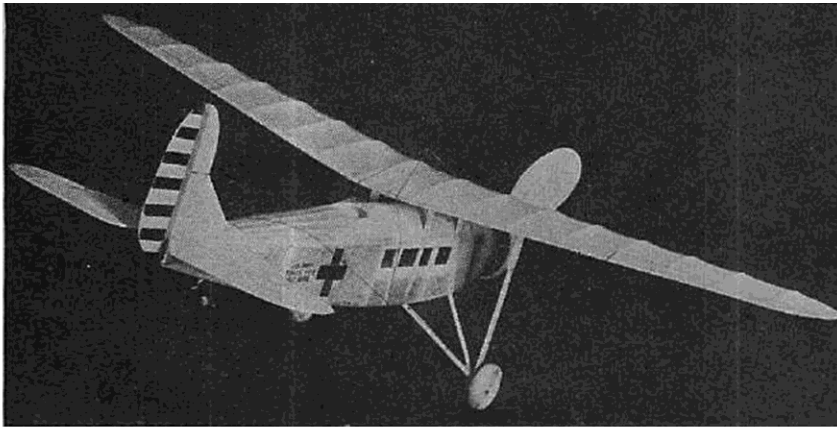


# Ambulance of the Air



The parasol design is inherently stable.

*Timed for 56 seconds indoors and capable of indefinite soaring flights outdoors, this month's design has real performance—a light-weight model.*

ORIGINALLY designed as an ambulance plane, this Fokker monoplane became, in turn, a cargo carrier and a flying laboratory for the U. S. Army Air Corps' latest experiments in blind landing. (See AIR TRAILS, December, 1937.)

The tremendous inherent stability produced by the parasol wing and long fuselage made the C-14 a natural choice for such trying assignments.

Constructionally typical of methods pioneered by Tony Fokker, the fuselage and tail group are of welded steel tubing, while the full cantilever wing is entirely of plywood.

Powered by a 700 h.p. Pratt & Whitney Hornet, this

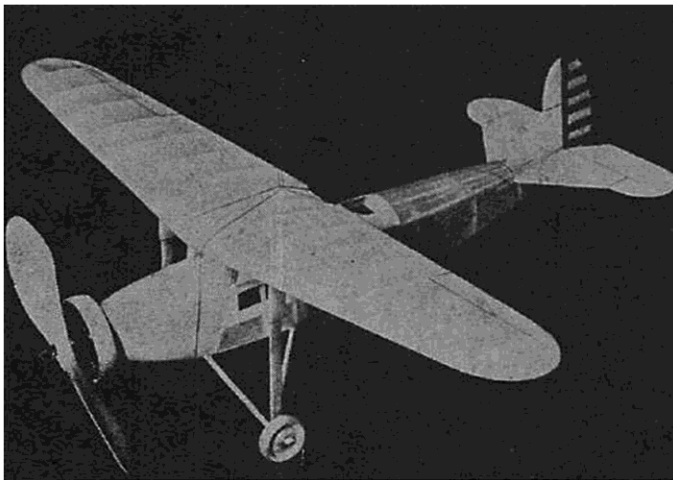
air hospital can rush the injured comfortably to proper medical attention at 160 m.p.h. Fourteen persons, including a doctor, can be accommodated in the spacious cabin. A single-place cockpit atop the fuselage affords the pilot excellent visibility and a complete set of instruments.

Retaining the stability, strength and efficiency of its prototype, the Fokker C-14 is an ideal entry for the increasingly popular flying-scale meets. Our model has easily made rafter-scraping indoor flights of 50 seconds, as well as indefinitely longer soaring flights outdoors.

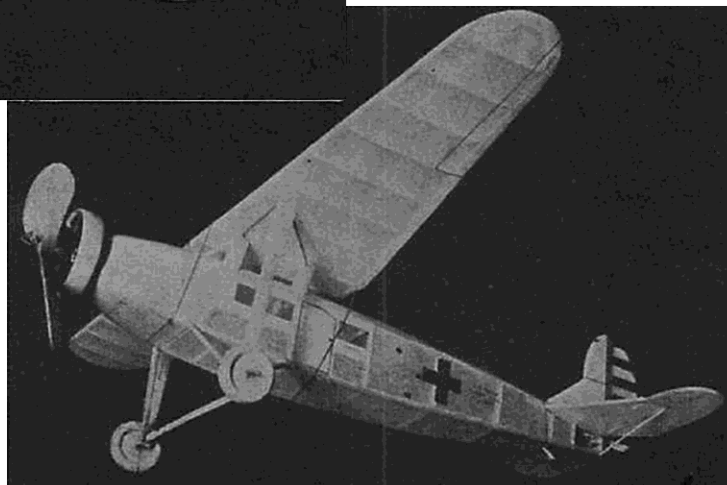
To duplicate the original, use only the best light, soft balsa, preferably of the quarter grained variety throughout. A table listing the weights of the individual parts is given at the end of the article with which to check as construction progresses.

## THE FUSELAGE

Join plates I and II to obtain a full-size working plan of the fuselage. The longerons of medium hard,  $\frac{1}{8}$ " sq. balsa are pinned to the drawings and the uprights of  $\frac{1}{16} \times \frac{1}{8}$ " are fitted in position. Both sides are made at one time, one atop the other. When dry, they are carefully separated and joined by formers 1, 2, 3 and the corresponding bottom cross pieces. Pull the rear together and insert the (Turn to page 80)



Featured in the miniature Fokker C-14 are a free-wheeling propeller and a detachable wing, held in place by a rubber band. Despite such details as a dummy motor and an anti-drag ring, performance is comparable with that of a small contest model.



By  
Henry  
Struck

# AMBULANCE OF THE AIR

(Continued from page 66)

remaining formers and cross pieces. Cover the top of the fuselage with a 2" sheet of  $\frac{1}{32}$ " balsa. It is easiest to use separate sections between formers 1 to 3, and 3 to 4. Run five stringers  $\frac{1}{16} \times \frac{1}{32}$ " over the rear formers.

Secure two very light and soft pieces of balsa,  $1 \times 2 \frac{1}{8} \times 4$ ", gluing them together lightly. Cut one end at the angle necessary to fit the front of the built-up portion of the fuselage. Tack lightly in position with cement. Trace the side view on the block and carve almost to the outline. The top view is similarly treated. Shape to the proper cross section with knife and sandpaper, trying to blend the lines of the fuselage smoothly into the nose block. When finished, remove from the body, pry the halves apart and hollow out the inside to the thickness shown by dotted lines. Recement to the body. The window outlines of  $\frac{1}{32}$ " sheet are fitted between the uprights. Note that there is a window opposite the door, but none opposite the last window on that side. Cement the stabilizer support Z to the top longerons.

## THE WINGS AND TAIL

The ribs, given full size, are cut out of sheet balsa as specified. From the right wing panel given, trace a left half and assemble the wing directly on the complete plan. Before inserting the center rib, the wing is cracked at the center and each tip raised  $1 \frac{1}{4}$ " for dihedral. The remaining rib, as well as the spar and the wing mount supports Y, are then added.

The tail group is flat in section and very simple to build of the materials noted on the drawings.

Curved outlines of the wing and tail should be made of separate sections in which the grain of the wood runs as indicated.

## COVERING

The completed framework is sanded to round off any sharp corners or remove bumps that may mar the covering job. Actual covering of the simple surfaces with white tissue presents no problems that fresh, smooth paper and average care cannot overcome. The left rear panel of the fuselage and the rudder are not covered for the present. Apply several coats of dope, sanding between each, to the exposed wood parts.

## THE LANDING GEAR AND ASSEMBLY

The landing gear struts are of very hard balsa, streamlined in cross section. Struts A, projecting into the nose, are

cemented in place at the proper angle. Struts B are joined to the outside of the longerons and to the ends of A. The wing mount struts C are glued to the top longerons, recessing the cowl as necessary. From .028 piano wire form fittings D and cement to C, using the dihedral of the wing as a template to get the correct angle. The shock struts E are made of two sections and cemented at the top to D and at the bottom to the landing gear. The axles are bent of .028 wire, incorporating a small loop to cushion landings. (See axle detail.) Glue the rudder to the tail post. After the rear hook is installed, the rudder may be covered.

Throughout the assembly process described, use several coats of cement on all joints and check alignment of the structure frequently.

The stabilizer halves are attached to the foundations with a  $\frac{1}{16}$ " negative incidence. Now pin the wing temporarily in position and glue the small blocks X to the wing mount supports Y. Do *NOT* glue to either struts C or wire D. The purpose of the blocks is to prevent the wing from shifting in flight, yet the wing can move if the plane strikes an obstacle. Hooks W, bent of pins, are connected by thin rubber bands permitting the wing to be quickly attached for flight or removed for transportation.

Spray the surfaces lightly with water and apply a coat of thin dope.

## MOTOR AND PROPELLER

The dummy cylinders can be made in several ways. Most difficult, but also most realistic, is to make them of alternate disks of paper and  $\frac{1}{32}$ " sheet balsa. A second method is to wrap cylinders of the proper diameter and shape with thread, while the easiest of all is to use a set cut from a purchased celluloid motor.

The nose plug, laminated of two sheets of  $\frac{1}{4}$ " balsa, should fit snugly into the front of the nose. A shaft hole is drilled at a slight downward angle. Washers, with bushings inserted, are cemented to front and rear.

Sand a  $\frac{9}{16} \times 6 \frac{1}{2}$ " length of  $\frac{1}{16}$ " sheet to an airfoil section for the drag ring. As the grain must run in the shorter direction, several widths of balsa will have to be cemented together. Soak the strip in hot water and bend around a bottle or can  $1 \frac{7}{8}$ " in diameter. When completely dry, the ring is removed and cemented to the cylinders.

The propeller is carved of a  $\frac{7}{8} \times 1 \frac{1}{4} \times 6 \frac{1}{2}$ " block, blanked out as shown on the plans. The back of the blades should be undercambered about  $\frac{3}{32}$ "

at the widest point. Round off the outline, balance, and finish with several coats of dope. To take full advantage of the gliding ability of the model, the prop should be equipped with one of the many popular free wheeling devices.

## FLYING AND DETAIL

Six strands of  $\frac{3}{32}$ " flat lubricated brown rubber are enough power to fly a one ounce model perfectly. Eight strands of  $\frac{3}{32}$ " (six strands of  $\frac{1}{8}$ ") will give a terrific climb for outdoor flying even with a heavier job.

The first step in flying is to check the incidence and balance. The center of gravity should be located  $\frac{1}{3}$  the chord from the leading edge, where the wing spar is found. Correct any variation with a small amount of clay ballast for the first tests, later replaced by added details of equal weight.

When a smooth glide has been obtained, making the small adjustments that may be needed by warping the stabilizer slightly, give the motor about 100 turns and hand launch. Adjust the rudder to circle the model against the torque. If under increased winds the circles become too tight, washout the *right* wing slightly. (Looking from the front.) Stretched and wound with a winder, the 800 turns possible will easily hook your ambulance plane to one of those spring thermals.

Details such as colored tissue insignia and black India ink lettering and trim add greatly to the appearance. Other items can be easily taken from the plans and reproduced with a little ingenuity from scraps of balsa or wire.

## TABLE OF WEIGHTS

PART	WEIGHT
Fuselage frame.....	.12
Nose .....	.1
Dummy motor.....	.1
Prop and plug.....	.1
Tail .....	.05
Wing .....	.13
Covering .....	.1
Rubber (6 strands $\frac{3}{32}$ " flat) ..	.14
Landing gear and miscellaneous detail .....	.20
Finished model.....	1.04

## MATERIAL

Blocks	Sheet
2 $1 \times 2 \frac{3}{8} \times 4$ "	1 $\frac{1}{32} \times 2 \times 18$ "
1 $\frac{7}{8} \times 1 \frac{1}{4} \times 6 \frac{1}{2}$ "	1 $\frac{1}{16} \times 2 \times 18$ "
	1 $\frac{1}{4} \times 2 \times 2$ "
Miscellaneous	Strips
1 sheet white tissue	1 $\frac{1}{16}$ " sq. x 18"
1 $1 \times 4$ " sheet thin celluloid	1 $\frac{3}{32} \times \frac{3}{16} \times 18$ "
2 $1 \frac{1}{4}$ " balsa wheels	1 $\frac{3}{32} \times \frac{3}{8} \times 18$ "
1 24" length .028 piano wire	4 $\frac{1}{8}$ " sq. x 36"
2 oz. cement	2 $\frac{1}{16} \times \frac{3}{32} \times 36$ "
2 oz. clear dope	1 $\frac{1}{16} \times \frac{1}{8} \times 36$ "
6' $\frac{3}{32}$ " flat rubber	1 $\frac{1}{16} \times \frac{1}{4} \times 36$ "