FROG TRADE MARK "GOB

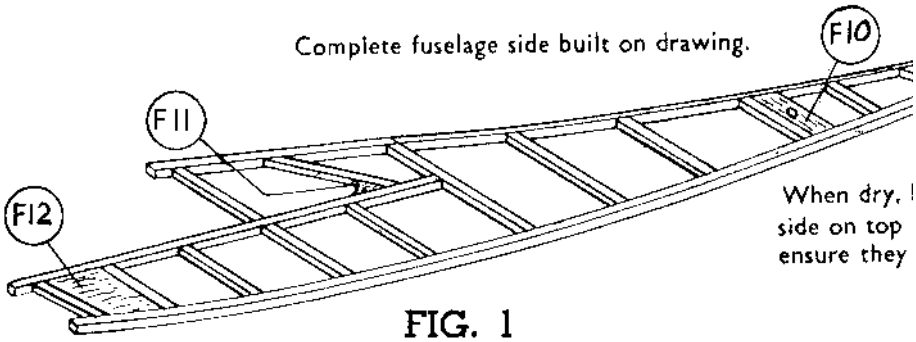


FIG. 1

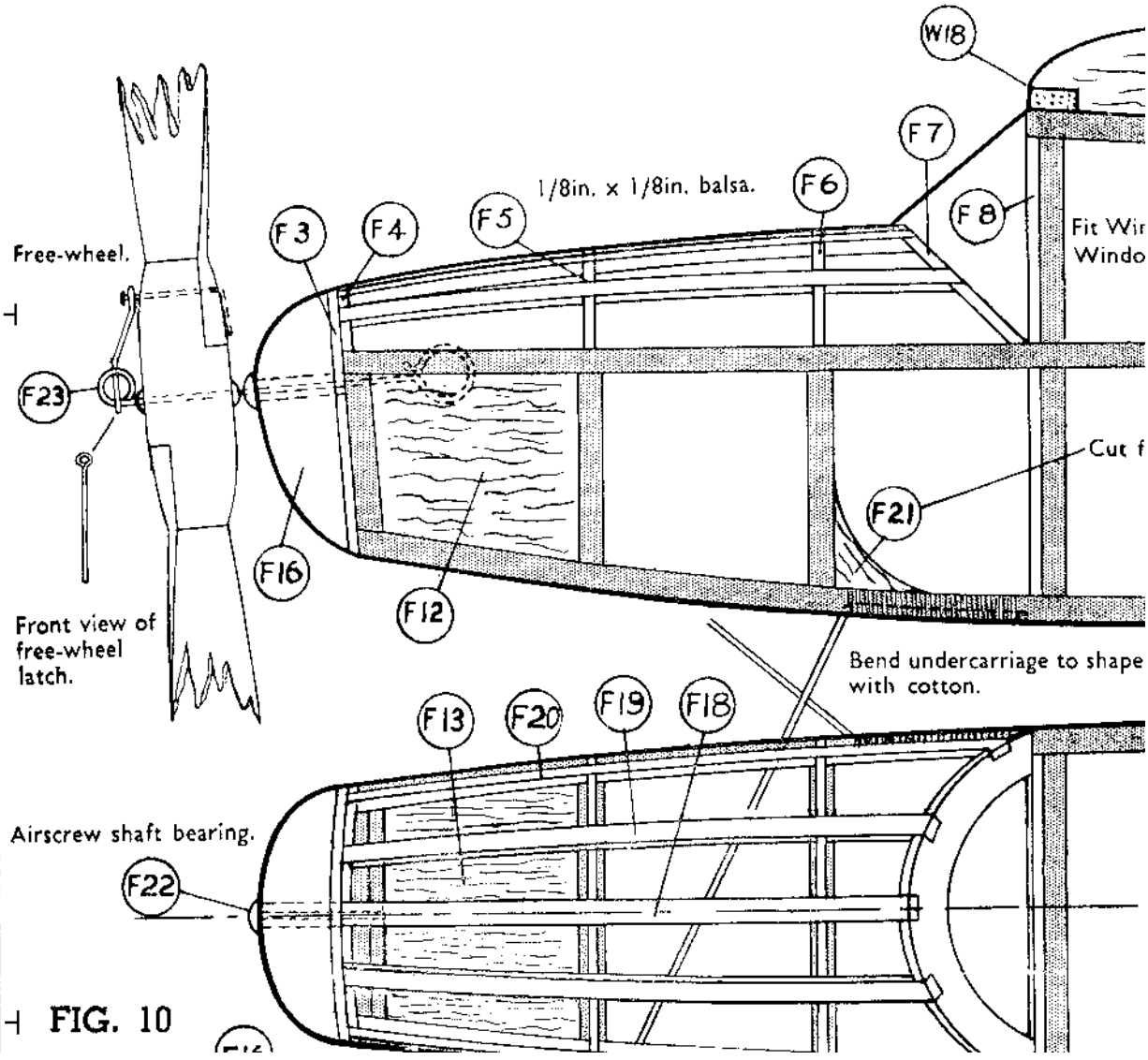
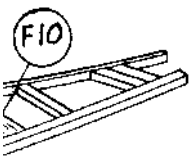


FIG. 10

BLIN" 24" SPAN



hen dry, build second
e on top of first to
ure they are identical

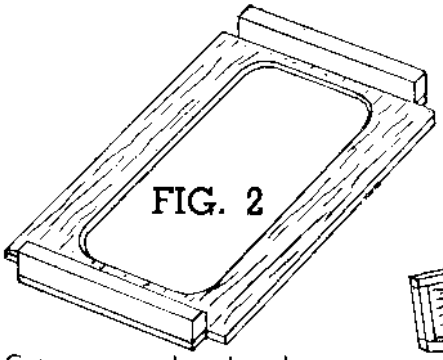
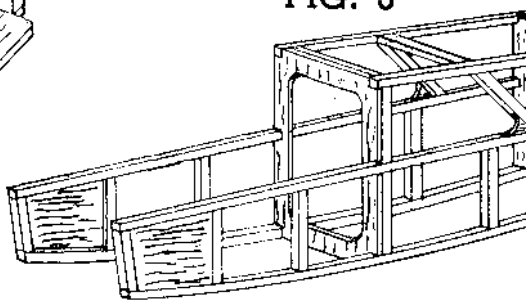


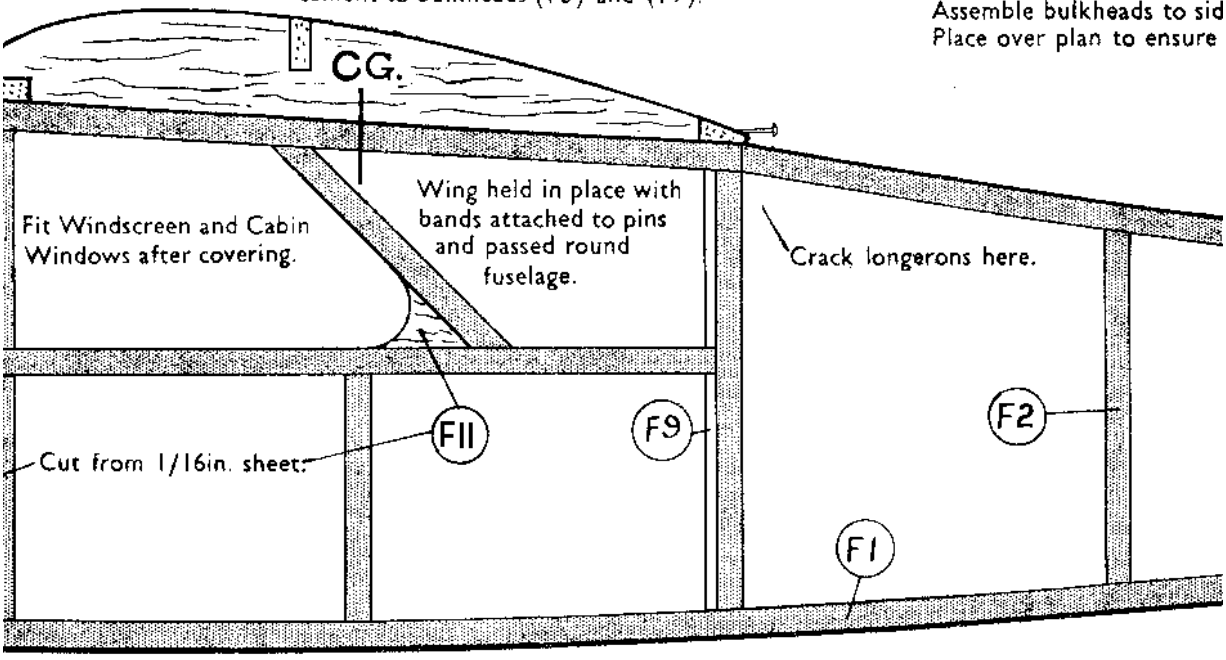
FIG. 2

Cut spacers to length and
cement to bulkheads (F8) and (F9).

FIG. 3



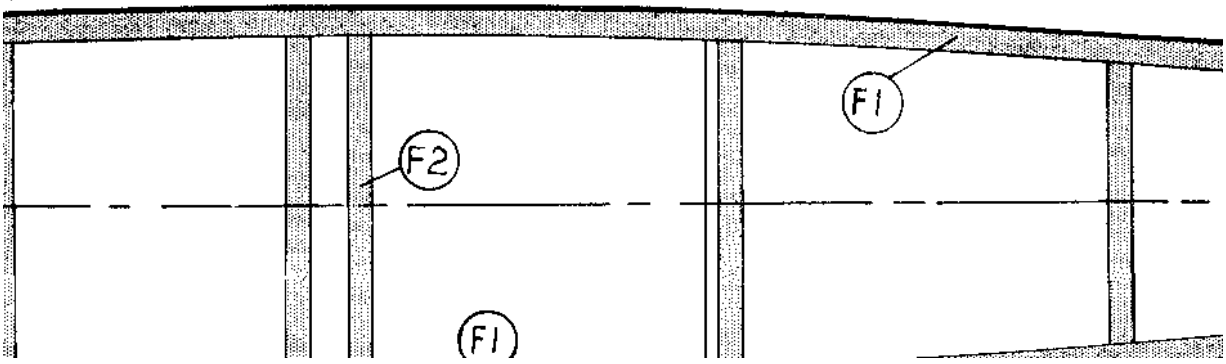
Assemble bulkheads to sid
Place over plan to ensure



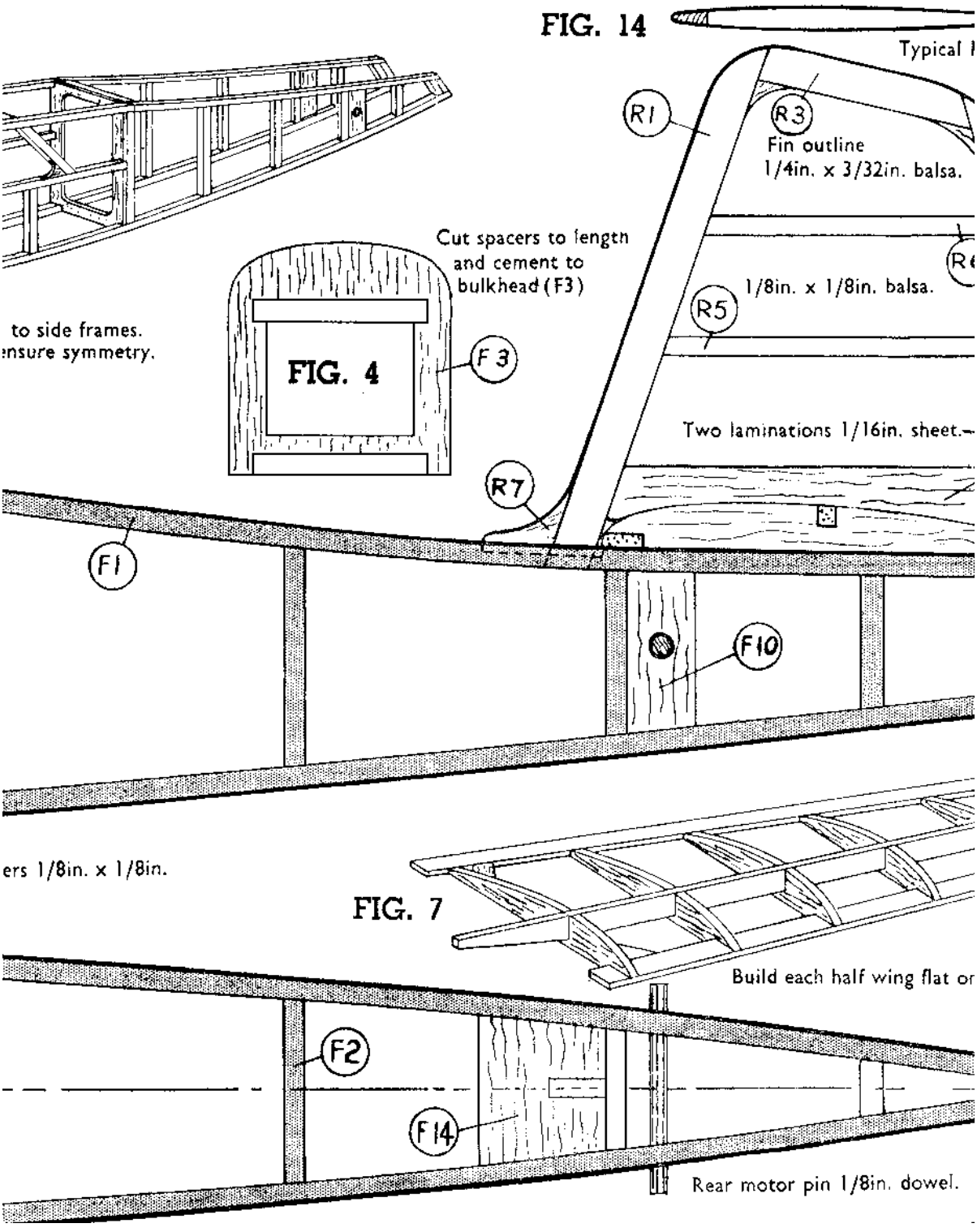
to shape and bind it in place

Basic structure shown shaded.

All longerons and spacers 1/
balsa.



JUNIOR DURATION RUBBER

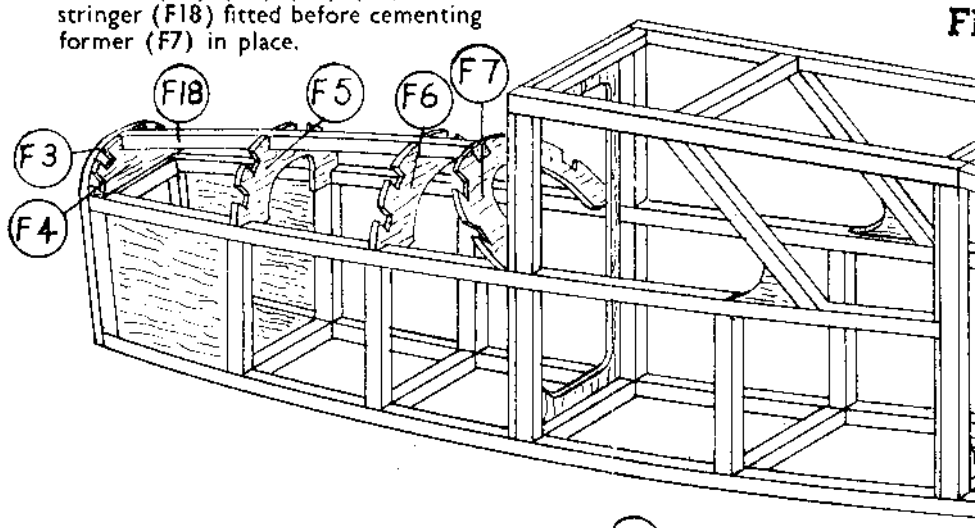


R MODEL CAT. No. 643 FK.

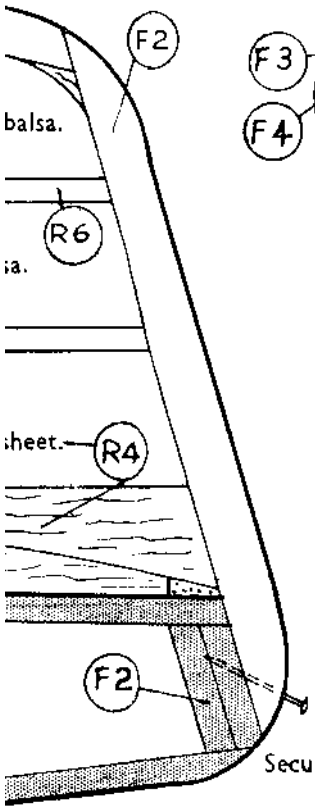
SPECIFICATION

LENGTH O.A	...	...
WING AREA		...
WEIGHT	...	...

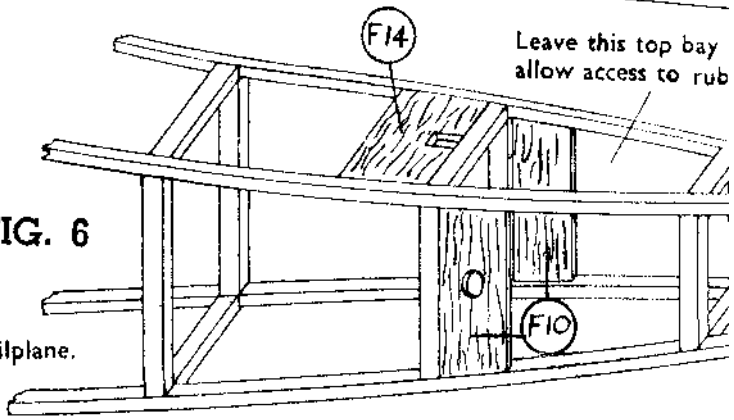
Formers (F3), (F4), (F5), (F6) and centre stringer (F18) fitted before cementing former (F7) in place.



Typical Fin section.

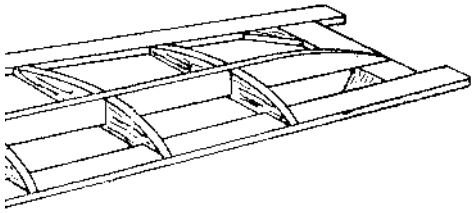


Securing pin for tailplane.

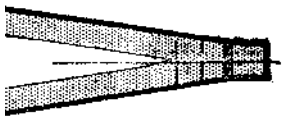


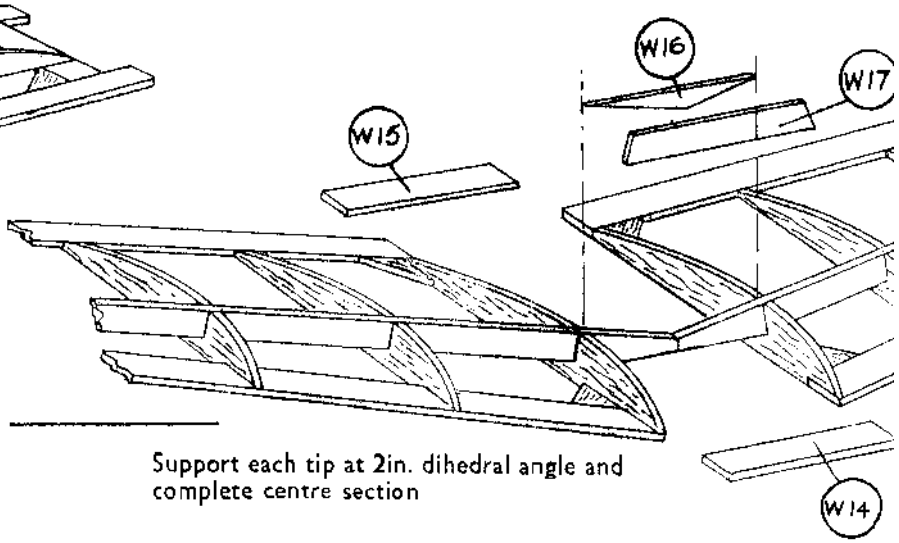
Leave this top bay allow access to rub

FIG. 6



flat on drawing.

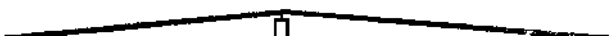




Support each tip at 2in. dihedral angle and complete centre section

owel.

Tailplane Leading Edge

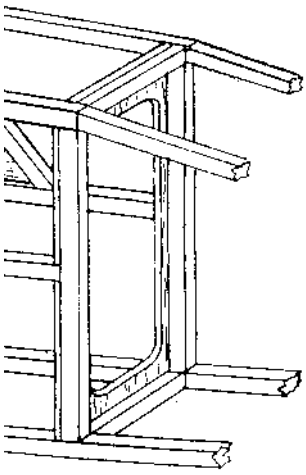


Tailplane outline 1/4in. x 3/

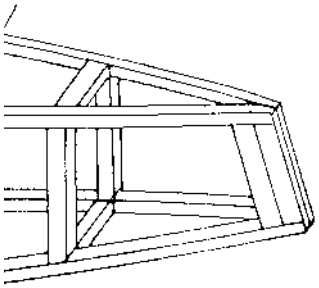
CATION:

...	18¼in.
...	80 sq. ins.
...	1½ ozs.

FIG. 5



top bay uncovered to
s to rubber motor.



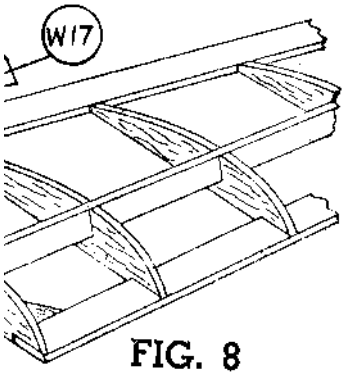
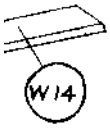


FIG. 8



GENERAL BUILDING INSTRUCTIONS.

The Goblin has been designed to incorporate extremely simple constructional methods and consists of 100% balsa wood, so that the few unshaped parts may be prepared with the minimum amount of labour. All cut-out parts are numbered to enable them to be readily identified, by referring to the drawing.

Before commencing to build the model, read the Instructions carefully and protect the plan by placing a sheet of greaseproof paper over it.

FUSELAGE.

This consists of two frames composed of longerons and spacers, to which are cemented the bulkheads, formers, etc. Begin by laying the longerons (F1) over the drawing, holding them in place with pins placed either side where necessary. Note that the top longeron must be cracked at bulkhead (F9), see drawing. Cut the spacers (F2) to length, but before cementing them into position duplicate each one for the remaining side. Cement also parts (F10), (F11) and (F12), see Fig. 1. Build the second side over the first to ensure that they are identical. When the cement is thoroughly dry, separate the sides with a razor blade.

Cut to length and cement spacers (F2) to bulkheads (F8), (F9) and (F3), see Fig. 2. When dry assemble bulkheads (F8) and (F9) to the fuselage sides, placing the structure over the plan view to ensure symmetry, see Fig. 3. Next fit bulkhead (F3), holding the assembly together with a small elastic band. When dry pull the sides in equally and cement together at the tail, again placing over the plan view for checking.

Cement Fin locating strip (F14) and nose reinforcing plate (F13) into place, then cut and fit all cross spacers (F2) also formers (F4), (F5) and (F6). Fit top stringer (F18) and then bulkhead (F7) in order to locate it at the correct angle, see Fig. 5. Next cement stringers (F19) and (F20). Complete the assembly by sanding lightly with fine sandpaper.

Form the wire undercarriage first to the shape shown in Fig. 9 and then bend back the top as shown in the side view drawing. It can then be bound to the inside faces of the longerons. Fit the wheels and bend up the ends of the wire. Finally . fit gussets (F21) cut from scrap 1/16in sheet balsa.

NOSEPIECE AND AIRSCREW.

Cement parts (F17) to block (F16). Check that the hole for the bearing (F22) is at the top half of the block and sandpaper to shape, see Fig. 10 and Gen. Arr. Drawings. Cut the bearing (F22) to ¼in. long and cement it in place.

Cement the airscrew blades firmly in the diagonal slots in the hub. When dry, sandpaper the blades to section, round off the edges of the hub and cement the cup washers in place, see Figs. 11 and 12.

Pass the airscrew shaft (F23) through the noseblock and airscrew and bend the loop as shown on the side view drawing. Bend the free-wheel latch to shape and fit it into place where shown with a pin cemented securely into position.

WING.

This consists of two half wings built flat on the drawing and afterwards raised at the tips at the correct dihedral angle, when the central section is built in.

Place the Leading Edge (W1), Trailing Edge (W2) and Tip (W3) over the drawing holding them in position with pins placed either side where necessary. Cement the ribs (W4)—(W9) in place, then shape the main spars (W10) at each end—see front view of wing—and cement into position. Cut all gussets (W11) and (W12) from scrap 1/16in. sheet and cement in place, see Fig. 7. When each wing has set raise the tips 2 inches and complete the centre section by cutting pieces (W14), (W15), (W16) and (W17) from 1/4in. x 3/32in. strip and cementing in place, see Fig. 8. Cut gussets (W13) from scrap 1/16in. sheet and cement these, together with the attachment pins (W18) into place. To complete the structure sandpaper the tips to shape and the Leading and Trailing edges to section as shown in Fig. 13.

TAILPLANE.

This is constructed in a similar manner to the wings. Make up the outline (T1), (T2) and (T3), then cement all ribs (T4)—(T7) and the main spar (T8) into place. Finally fit the gussets (T9) and (T10), cut from scrap [illegible] sheet and sandpaper the completed structure as for

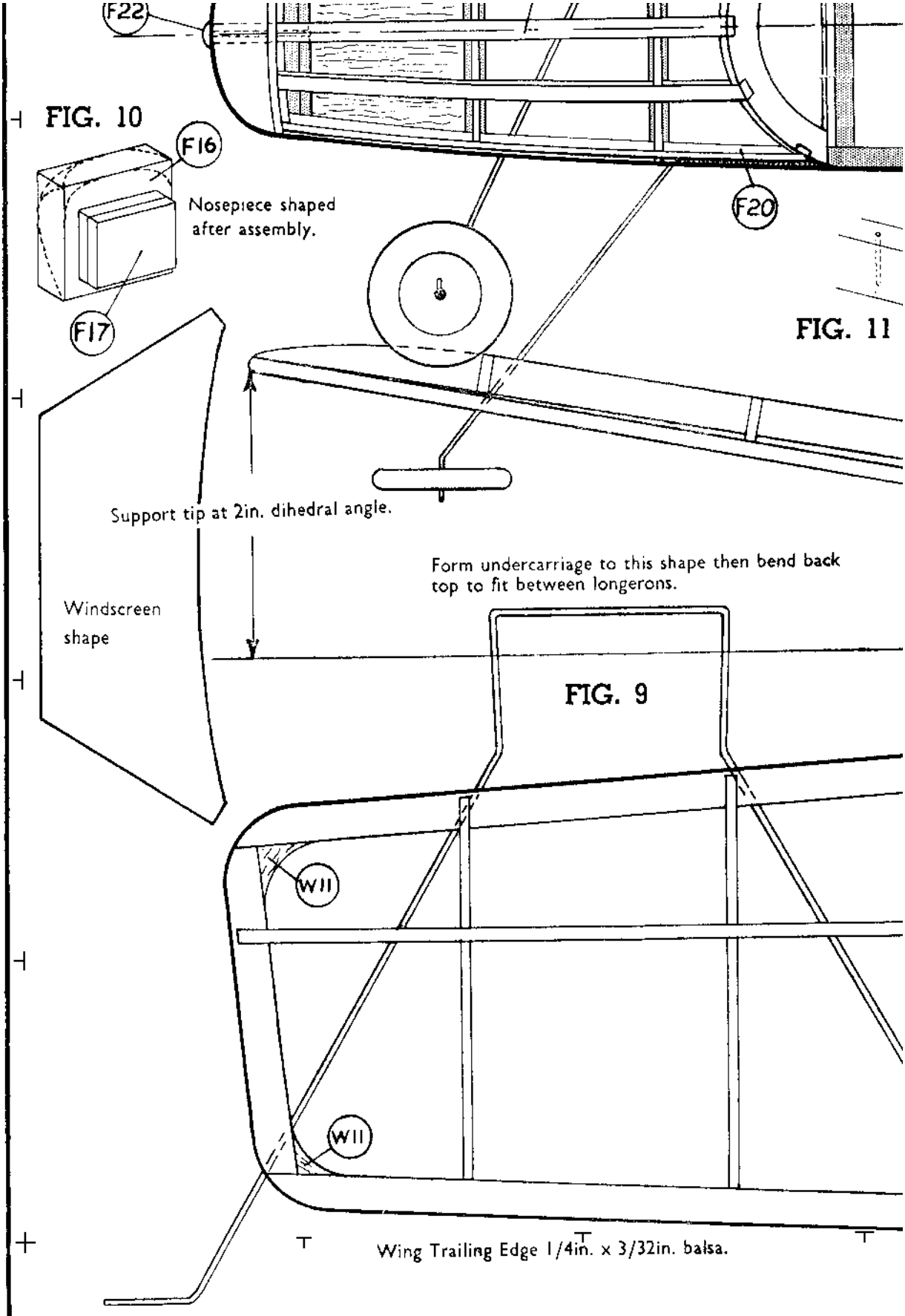
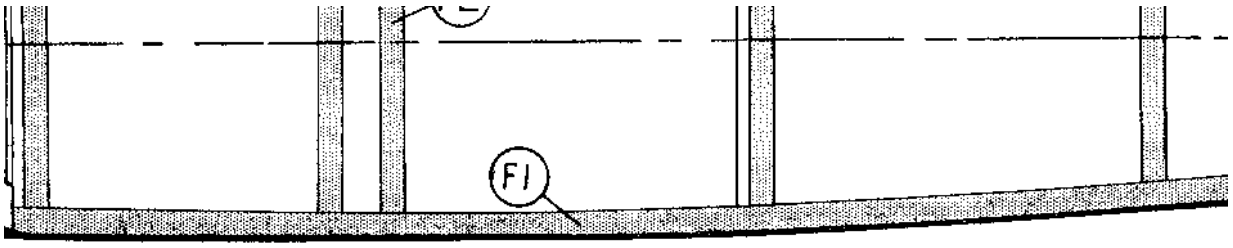
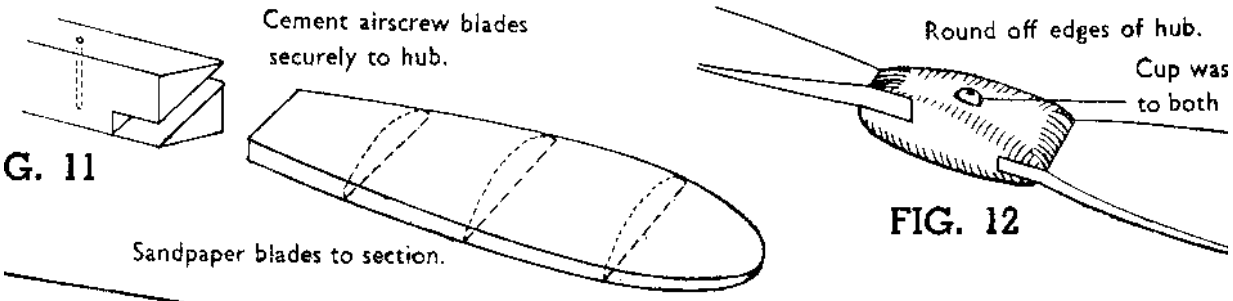


FIG. 10

FIG. 11

FIG. 9

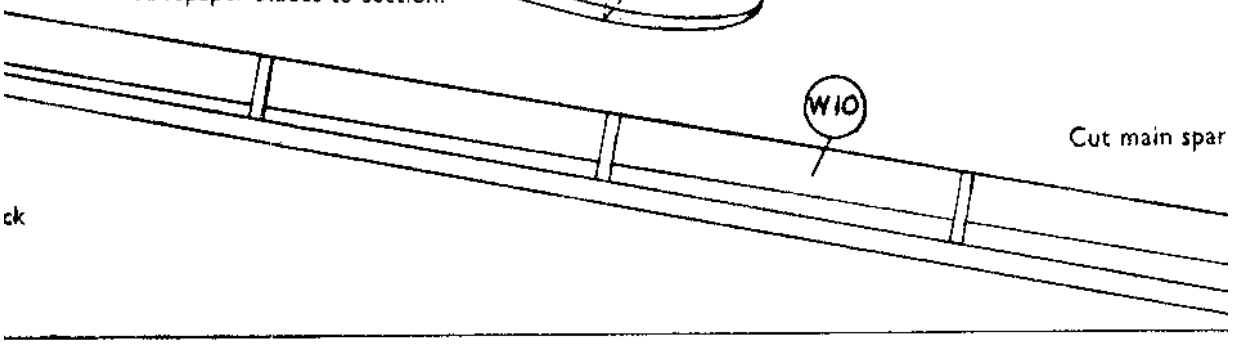

F1

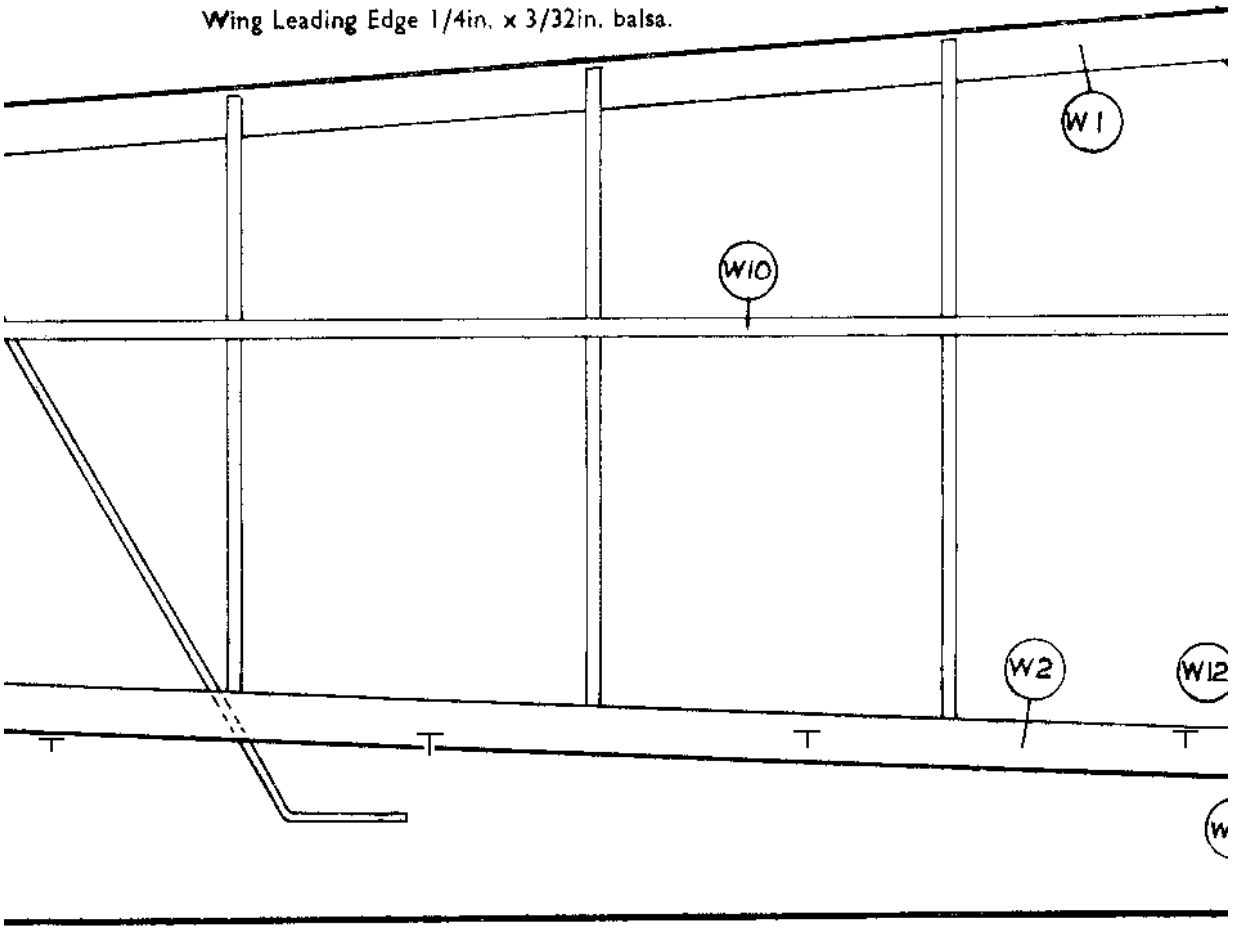

Cement airscrew blades
securely to hub.
Sandpaper blades to section.

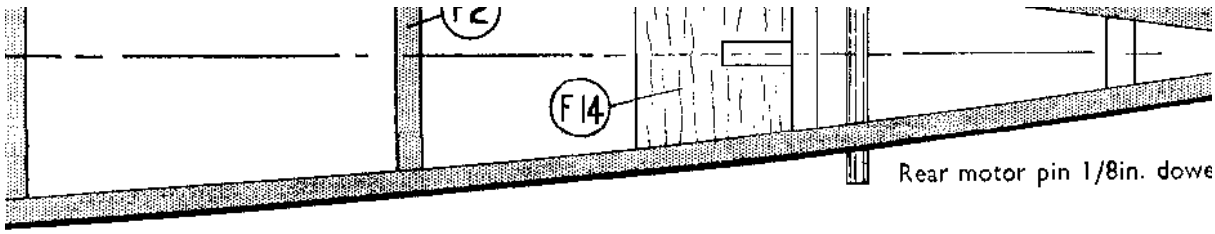
G. 11

Round off edges of hub.
Cup was
to both

FIG. 12


W10
Cut main spar
ck

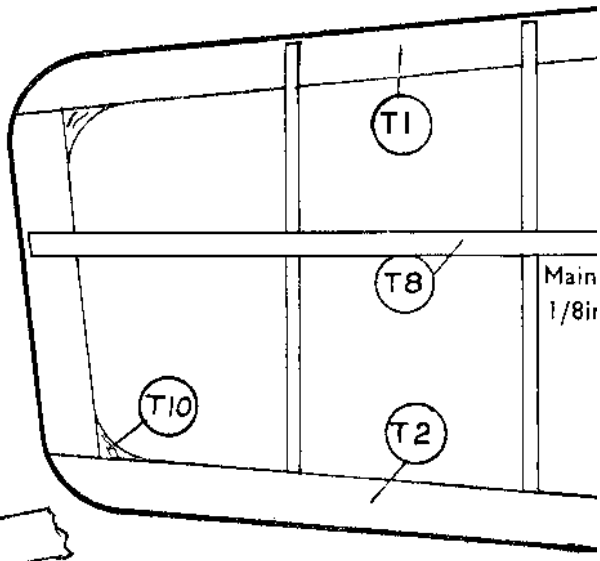

Wing Leading Edge 1/4in. x 3/32in. balsa.
W1
W10
W2
W12



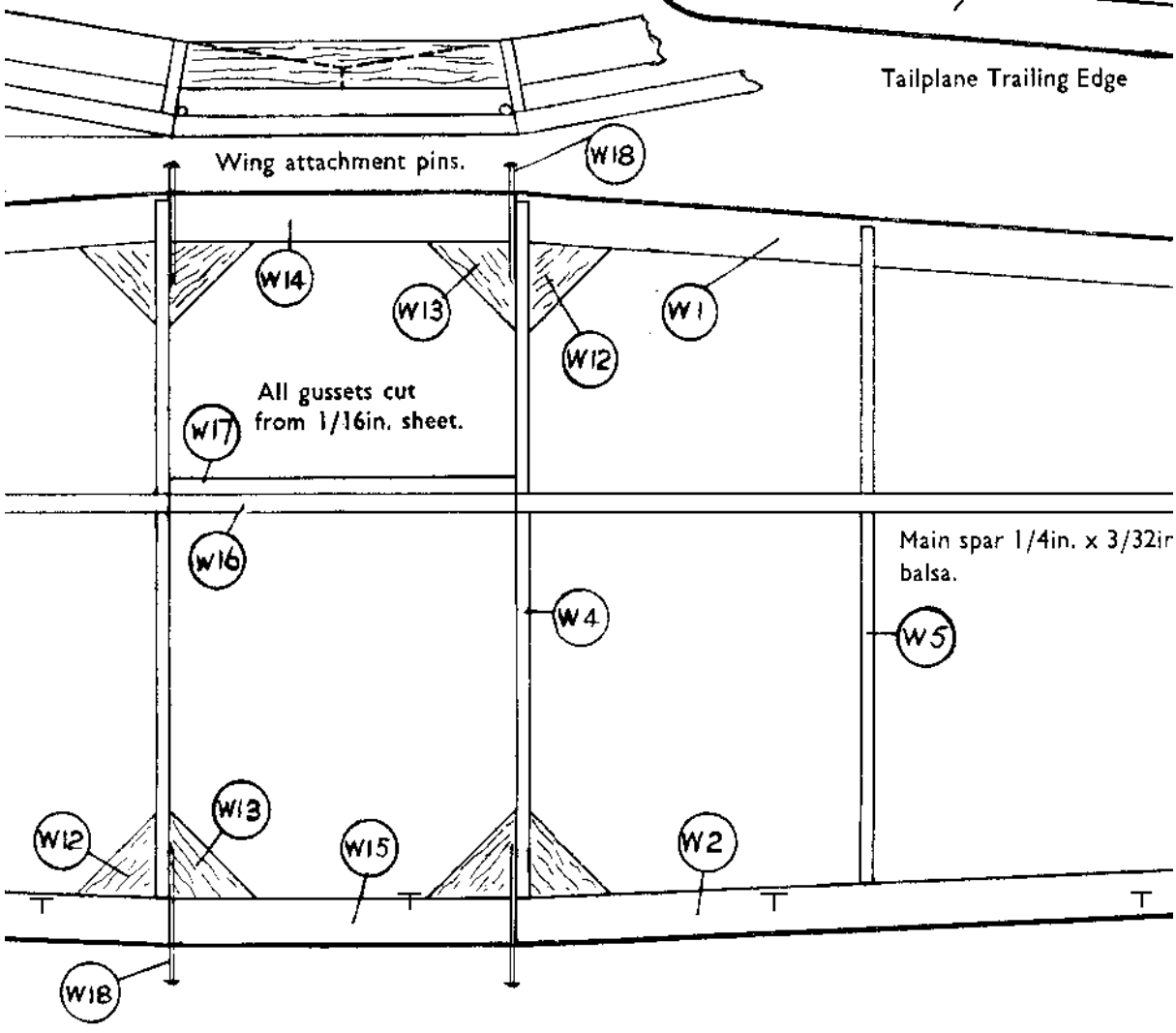
hub.

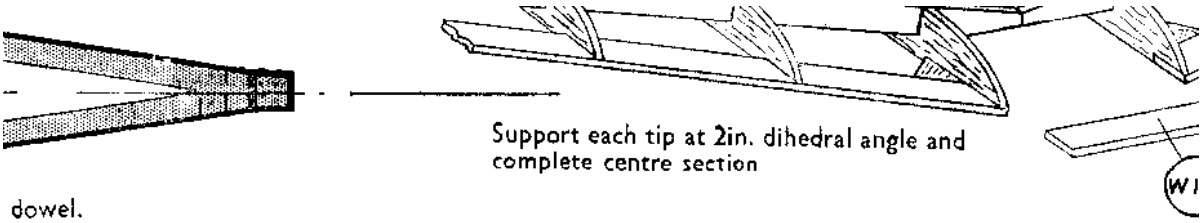
Cup washers cemented
o both sides of hub.

ain spars to shape before cementing in place.



Tailplane Trailing Edge

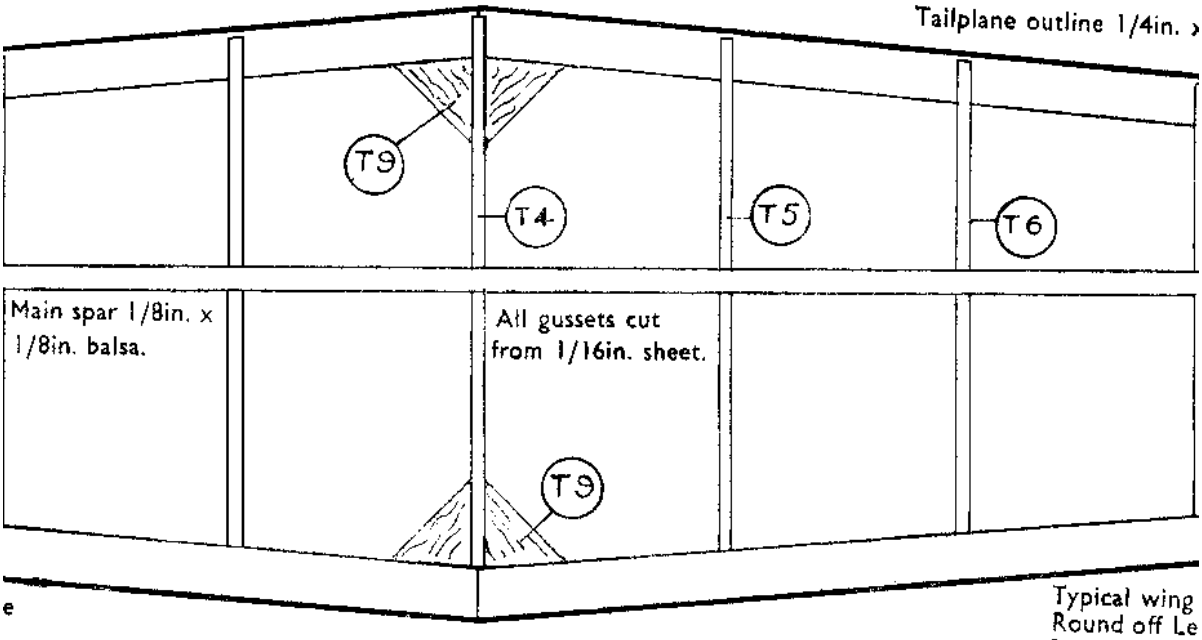




Support each tip at 2in. dihedral angle and complete centre section

dowel.

Tailplane Leading Edge



e

Typical wing
Round off Le
Trailing Edge

Wing outline 1/4in. x 3/32in. balsa.

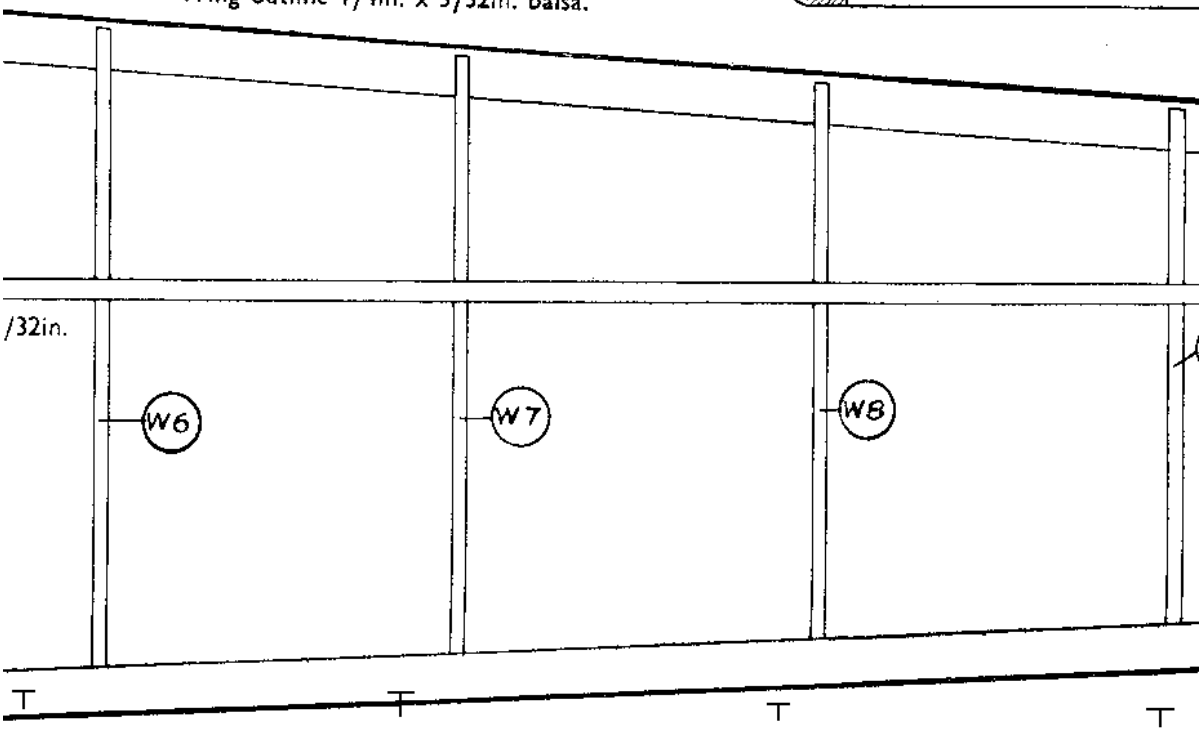
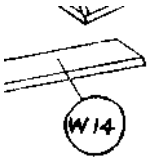
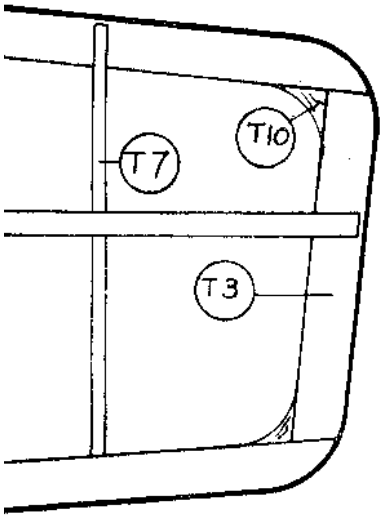


FIG. 8



1/4in. x 3/32in. balsa



:al wing section.
ıd off Leading Edge and taper
ng Edge as shown.

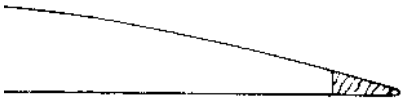
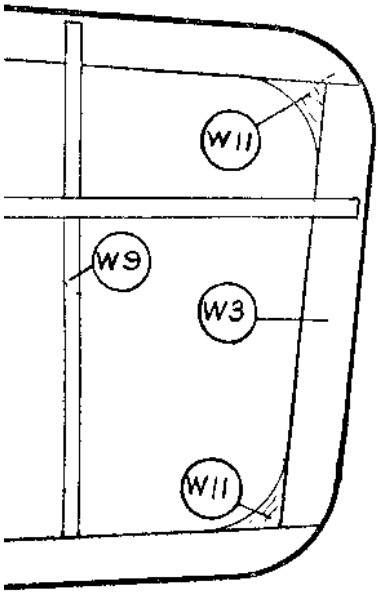


FIG. 13



see Fig. 8. Cut gussets (W13) from scrap 1/16in. sheet and cement these, together with the attachment pins (W18) into place. To complete the structure sandpaper the tips to shape and the Leading and Trailing edges to section as shown in Fig. 13.

TAILPLANE

This is constructed in a similar manner to the wings. Make up the outline (T1), (T2) and (T3), then cement all ribs (T4)—(T7) and the main spar (T8) into place. Finally fit the gussets (T9) and (T10), cut from scrap 1/16in. sheet and sandpaper the completed structure as for the wings.

FIN.

Make this on the drawing. Parts (R1), (R2) and (R3) are cut from 1/4in. x 3/32in. strip and (R4) consists of 2 laminations of 1/16in. sheet. Cut ribs (R5) and (R6) from 1/8in. x 1/8in. strip and sandpaper the complete fin to a thin streamline section, see Fig. 14.

Assemble the fin to the fuselage by cementing the projecting leading edge in the slot in (F14) and the trailing edge to the centre of the fuselage rear spacers. Cut gusset (R7) from 1/16in. sheet and cement in place.

COVERING.

Cover the parts in the following order:—Fuselage sides, top and bottom. Wing and tailplane undersurfaces, then top surfaces. Fin, each side separately. Paste the framework, then cut the tissue, allowing approx. ½in. overlap all round and place it into position. Do not attempt to pull the tissue drum tight but aim at covering each part uniformly with no deep wrinkles.

DOPING.

Before doping, spray or brush lightly all covered parts with water. Spray one half wing at a time and pin down on a flat board to ensure that no warps develop whilst drying. Pin the tailplane in a similar manner. When completely dry, give each component one coat of dope, again pinning down the wings and tailplane as soon as dope begins to harden off. Do not pin down when the dope is wet as the tissue will stick to the board. Give each component one coat of dope and one of lacquer.

WINDSCREEN AND CABIN WINDOWS.

Cut these from the celluloid supplied and cement in place.

RUBBER MOTOR.

This consists of four strands of 3/16in. x 1/30in. flat rubber 15in. long. Tie the ends of the elastic supplied together with thread, double the loop to obtain 4 strands and lubricate with Rubber lubricant or Castor Oil.

ASSEMBLY.

Hook the airscrew shaft to one end of the motor then drop it through the fuselage and secure by passing the 1/8in. dia. dowel through parts (F10) and loops of skein.

Slide the tailplane through the fin and secure with an elastic band round the fuselage and up over the tailplane to the rear securing pin.

Secure the wing with one band round the fuselage to the front attachment pins and another to the rear attachment pins. Check that all flying surfaces are free from warps.

C.G. POSITION.

The completed model should balance approximately at the point shown on the Side View drawing.

FLYING.

Choose a calm day for the first test flights which should be made preferably over long grass. Wind approx. 50 turns on the airscrew and launch the model gently on an even keel. If the model is correctly trimmed it will fly straight and level. If it climbs and stalls move the wings back slightly towards the tail. If it dives, move the wings forward slightly. Once trimmed the turns may be increased by approx. 50 turns on each subsequent flight until the maximum of 750 turns is reached.

Designed and Manufactured in England by

INTERNATIONAL MODEL AIRCRAFT LIMITED,

Morden Road, Merton, London, S.W.19.

Printed in England