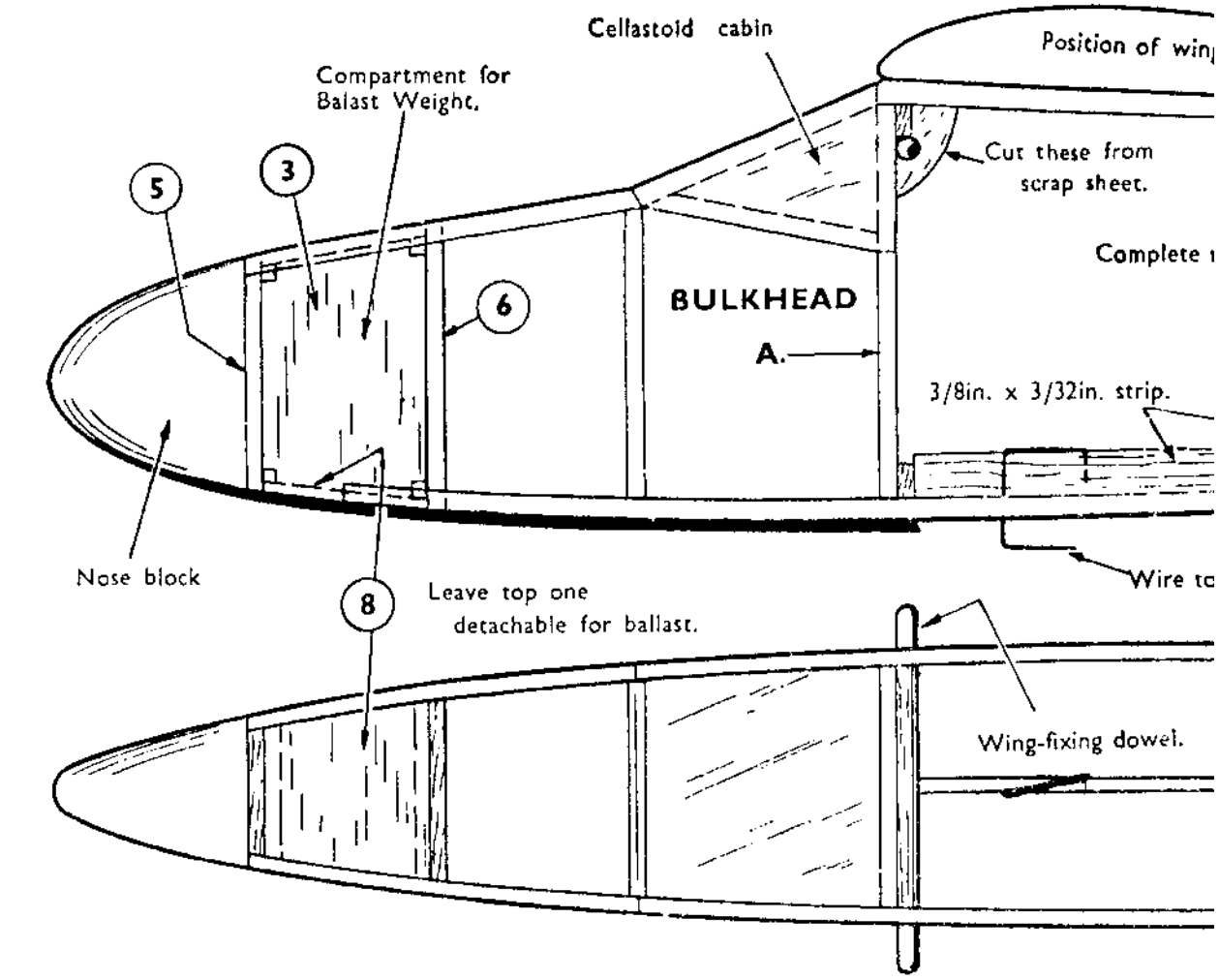
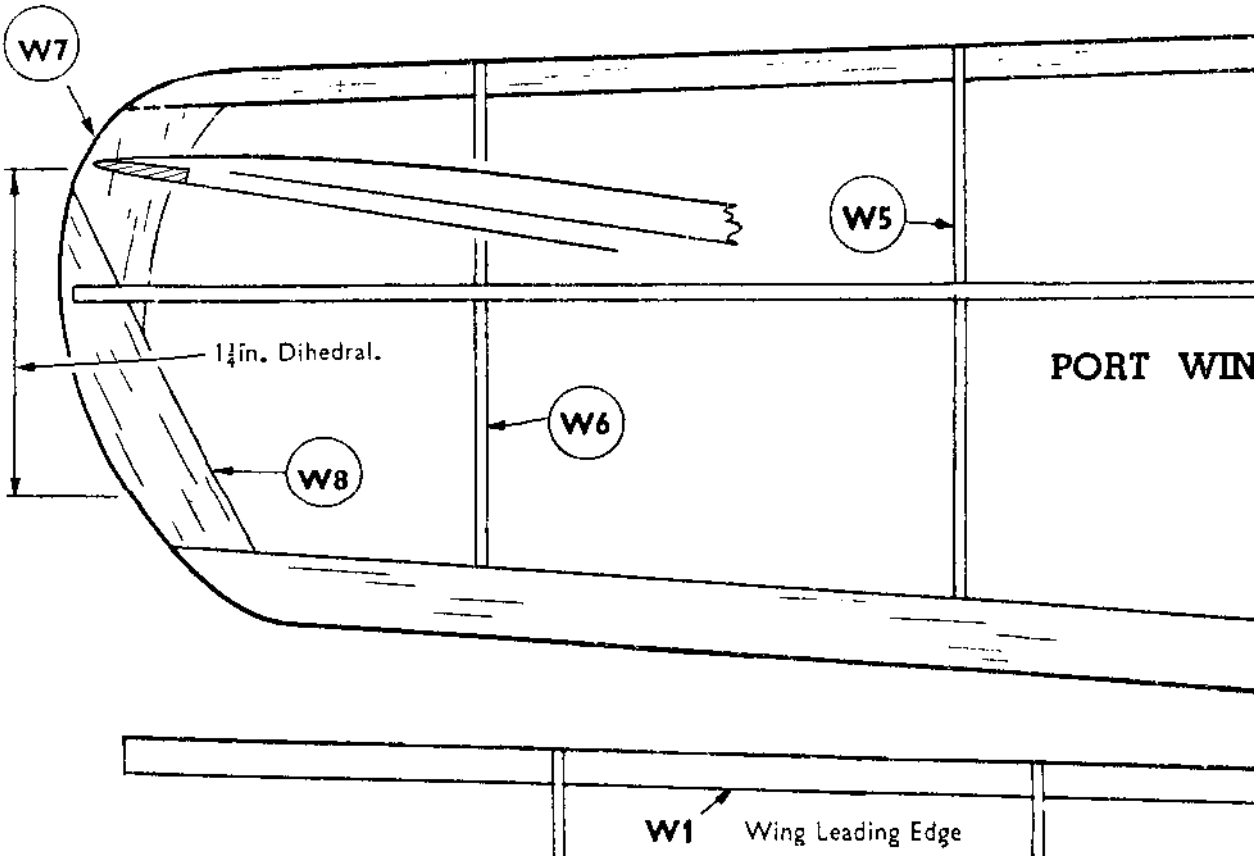
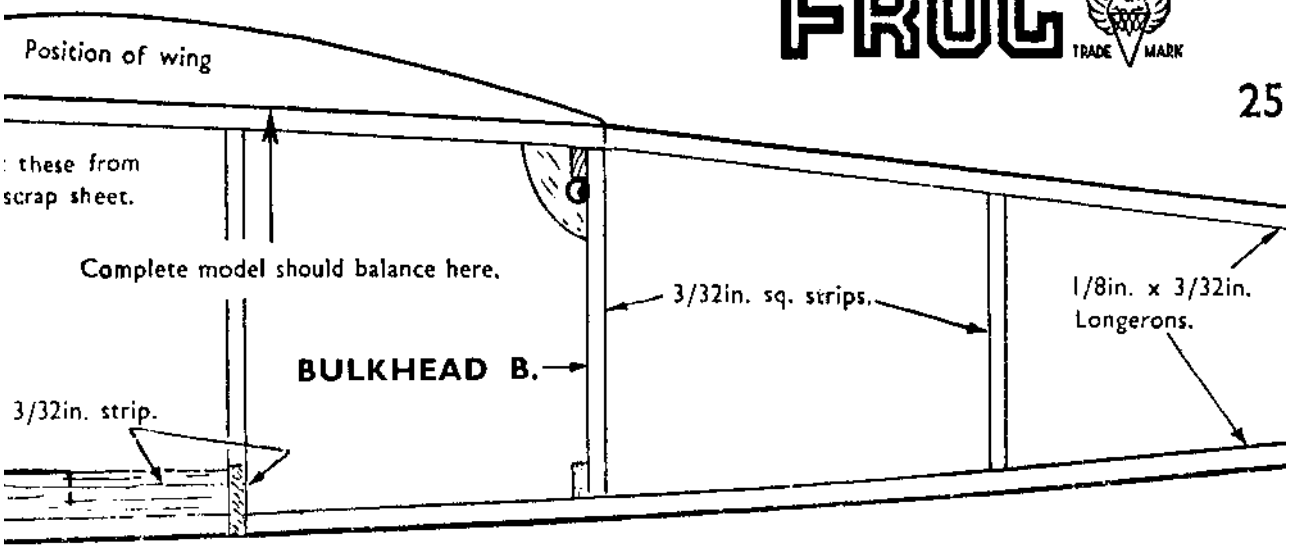
Cat. No. 725GK.


Celfastoid cabin
Position of win
Compartment for Ballast Weight.
Cut these from scrap sheet.
5
3
6
BULKHEAD A.
Complete
3/8in. x 3/32in. strip.
Nose block
8
Leave top one detachable for ballast.
Wire to
Wing-fixing dowel.


W7
W5
1¼in. Dihedral.
PORT WIN
W6
W8

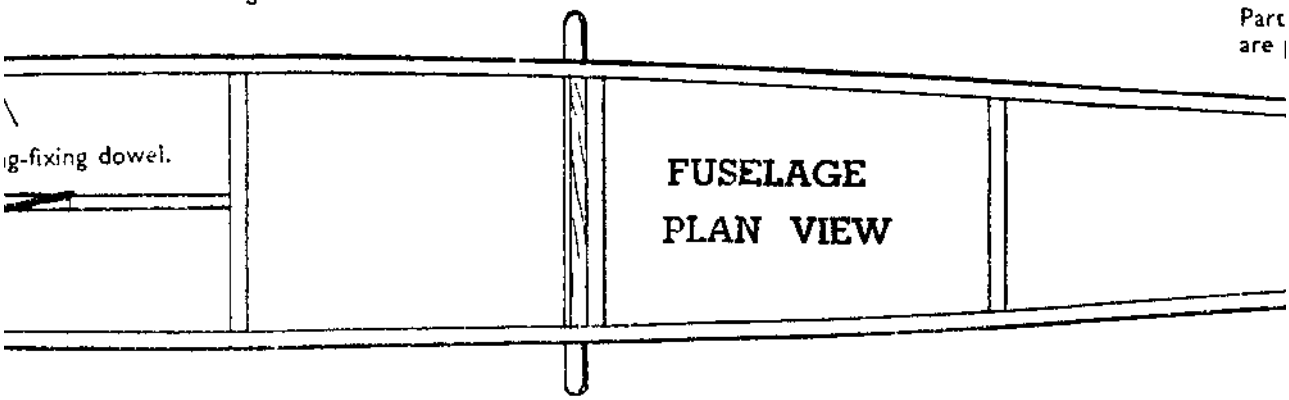
W1
Wing Leading Edge

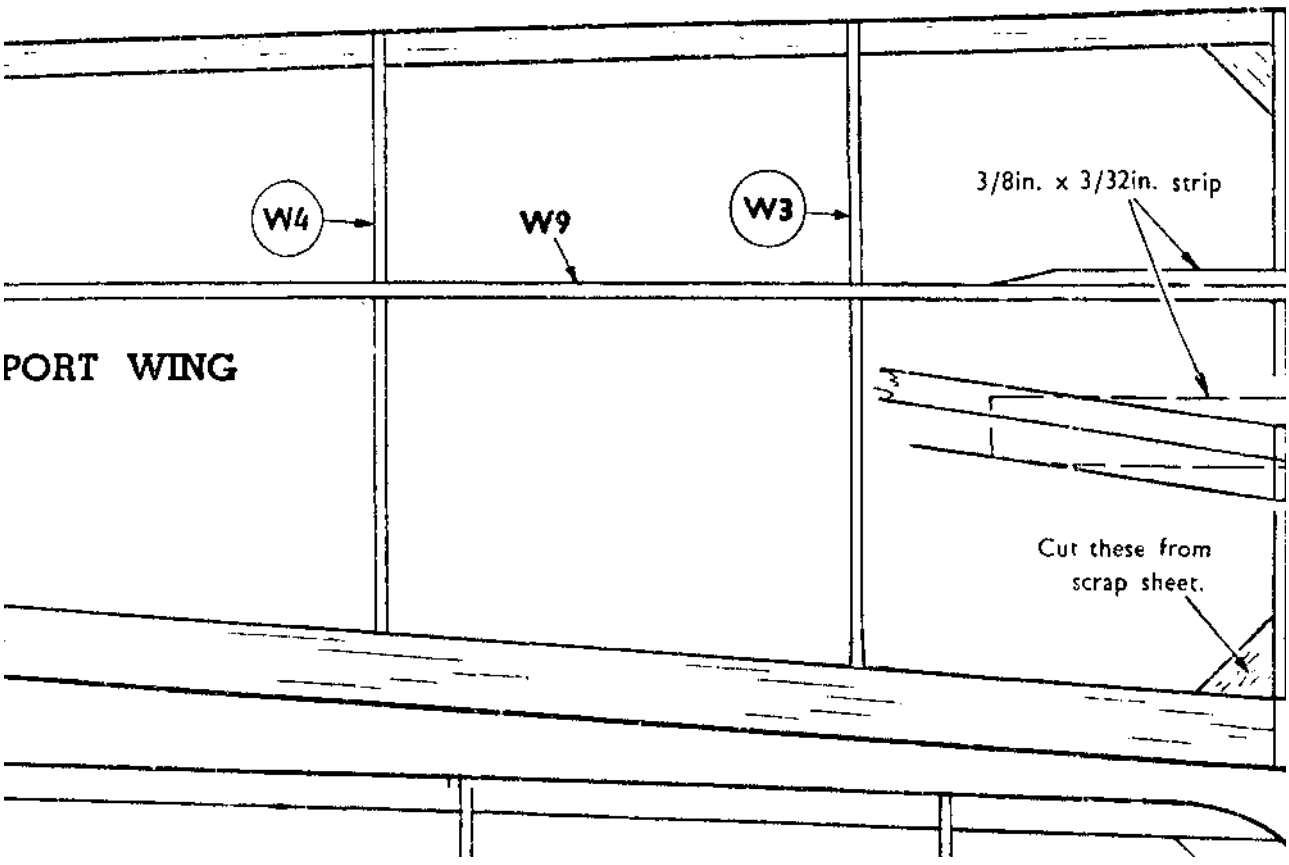


Wire towing hook

All parts are

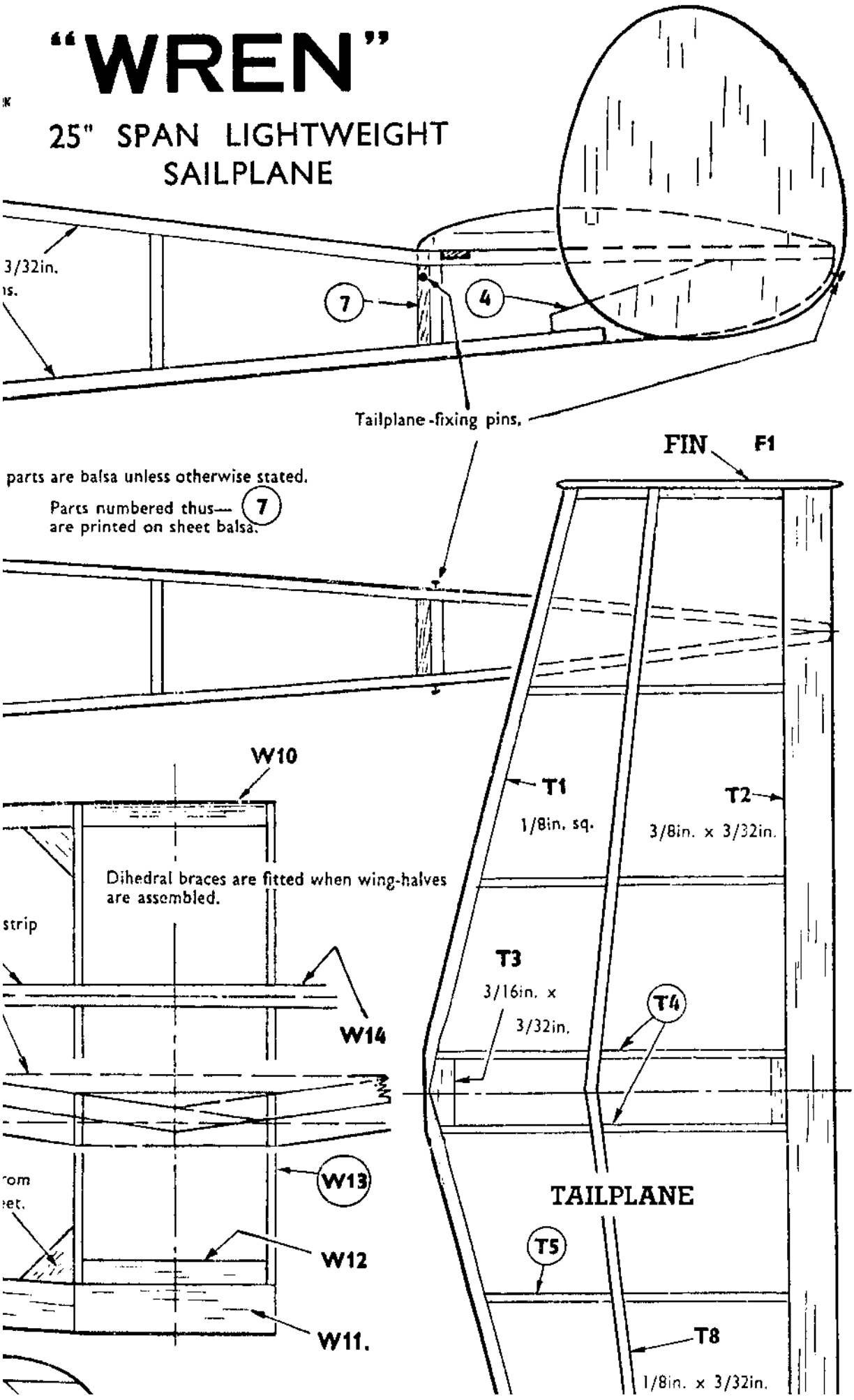
Part
are

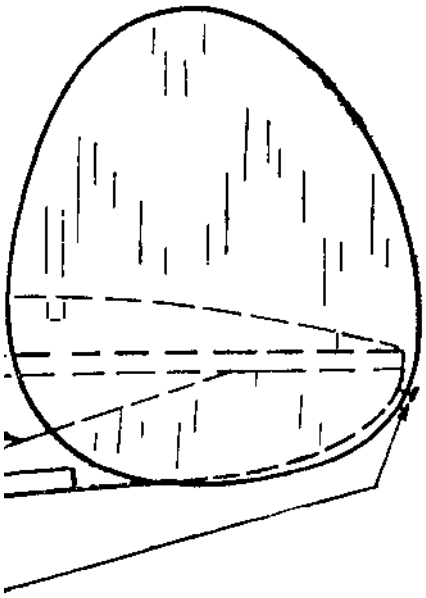


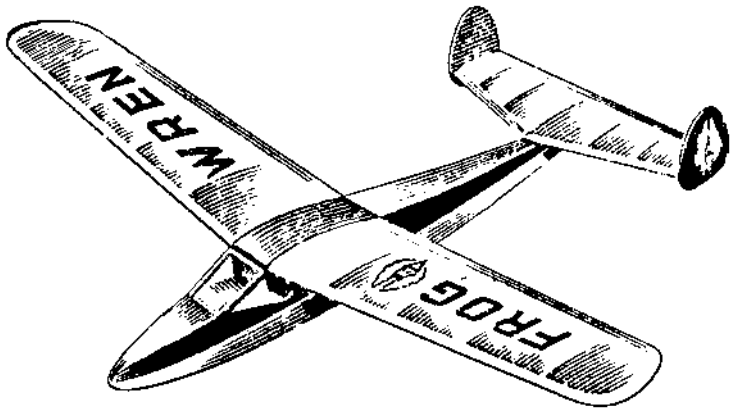


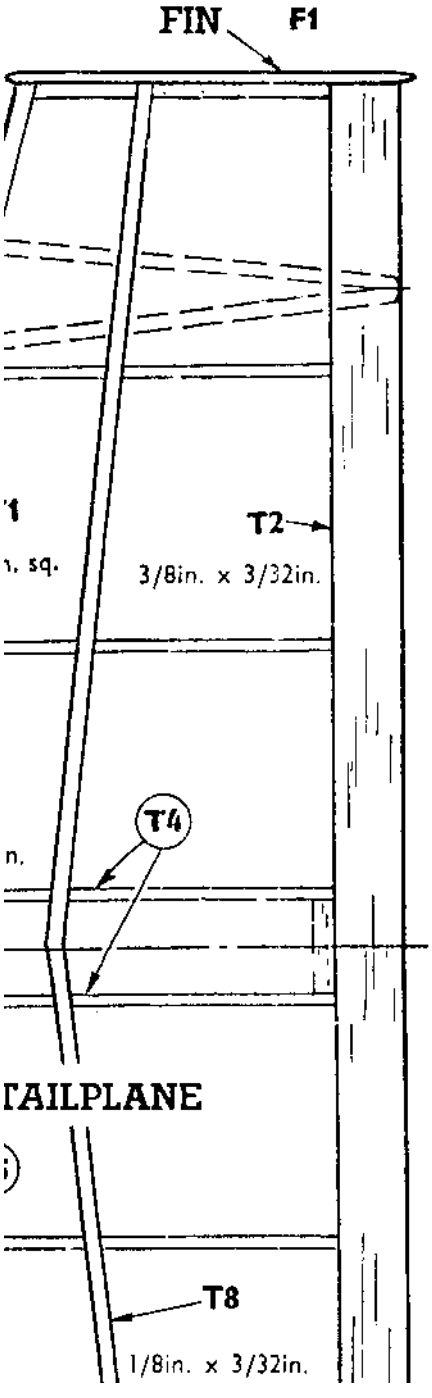
"WREN"

25" SPAN LIGHTWEIGHT SAILPLANE









BUILDING INSTRUCTIONS.

This model is very simple to construct, the kit incorporating the usual Frog practice of supplying most of the parts cut to shape and numbered to correspond with the drawing, leaving very little shaping to be done. The pre-cut parts can be eased out of the panels with a balsa-knife, or a razor-blade to sever the edges that are left uncut.

Pin the drawing to a flat board to work on, and cover it with a sheet of greaseproof paper to protect it from the cement. Dope and cement are not included in this kit, but can be obtained at any model shop. Use quick-drying balsa cement, such as Frog Universal.

CONSTRUCTION.

FUSELAGE. This is a simple box-type structure, which can be built mainly over the plan. First build the two sides from 1/8in. x 3/32in. longerons 1 and 3/32in. square strips 2, and also parts 3 and 4 from sheet 1, as shown in Fig. 1. Duplicate the strips, and build the second side over the first, with a piece of tracing paper between them. While these are setting, make up the bulkheads A and B over the plan as shown in Fig. 2 and remove parts 5, 6 and 7 from the panel.

Lift the side frames from the plan, and cement bulkheads A and B in place, checking over the plan view for squareness, Fig. 3. Next cement the bulkheads 5, 6 and 7 in place, then cement the rear ends of the fuselage together, using thin elastic bands to hold them in place until set. Cut the cross struts to length over the plan, and cement them in place, together with pieces 8 and the nose-block.

Bend the wire tow-hook, bind and cement it to the strip of 3/8in. x 3/32in. strip, then cement this to the fuselage.

Cut the wing-fixing dowels to length, and cement them against bulkheads A and B, together with the gussets which are cut from scrap.

Carve the nose-block to shape as shown in the plan and side-views, and in Fig. 5. Cement the hardwood skid 21 in place after covering, holding it with elastic bands. Taper it as shown to help bend it.

CABIN. It will be easier to fit this after the covering, but the following method should be used. First bend the callastoid to shape by gently creasing it where shown in the drawing. Apply cement to the edges of the frame-work at the centre first and hold the windscreen in place until set. Then cement the sides down.

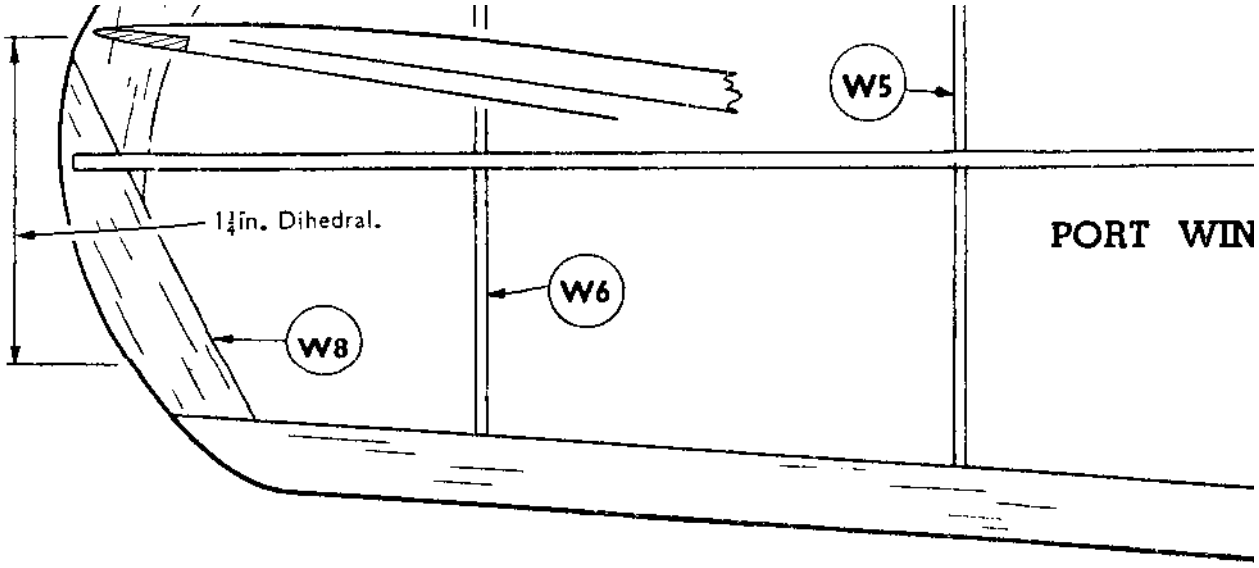
WINGS. Build the two halves over the plan separately. First lay the leading and trailing edge W1 and W2 over the drawing, with pins placed either side where necessary. Then cement ribs W3—W6 in place, and tip pieces W7 and W8. Cut the spar W9 to length, as shown in the front view, allowing for the overlap joint, taper it at the tip, and cement it in place in the rib slots. When both sides are built, and the cement has set, remove them from the plan and trim the spars to length, making a lap joint of the main spar as shown. Lay the wing-halves over the port wing drawing, raise the tips 1¾in. and build the centre-section, using the strips W10, W11 and W12 as shown, and the spar piece W14, shaping them after assembly. Then add the centre ribs W13, and the gussets made from scrap. Sandpaper the leading edge and tips to shape, and smooth down the whole structure.

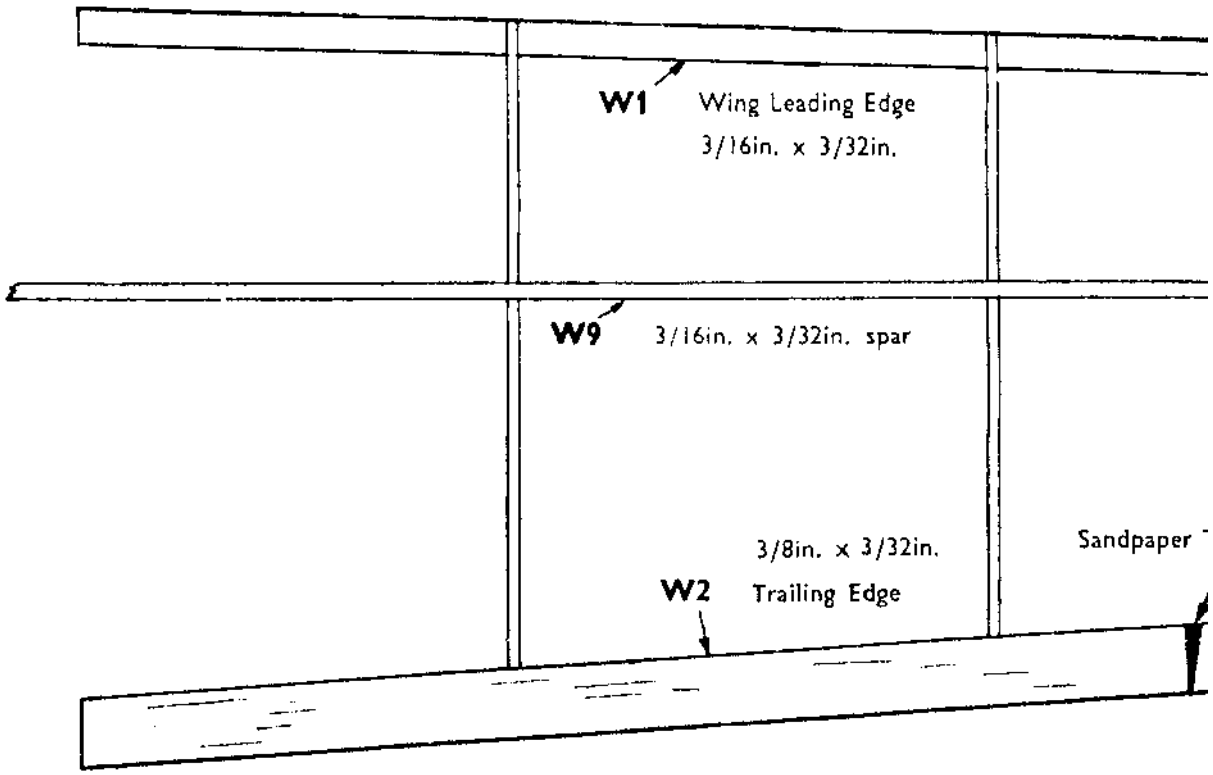
TAILPLANE. Pin down the leading and trailing edge strips T1 and T2 and jointing strips T3, cut from 1/4in. x 1/4in. Then cement the centre ribs T4, followed by ribs T5—7. Cement the spar T8 in the rib slots, and taper the ends. Sandpaper the leading edge and tips to shape.

FINS. These are ready-cut to shape, and only require sandpapering and cementing it to the ends of the tailplane, after the latter has been covered.

The tailplane is located on the fuselage at the front by cementing a short strip of balsa to the underside, to fit between the longerons. The tail can be offset slightly to obtain a circling glide if necessary.

COVERING. Cover the model with the paper supplied, in the following order—fuselage top and bottom, then sides. Wing and tailplane undersurfaces





When dry, build second side on top of first to ensure they are identical.

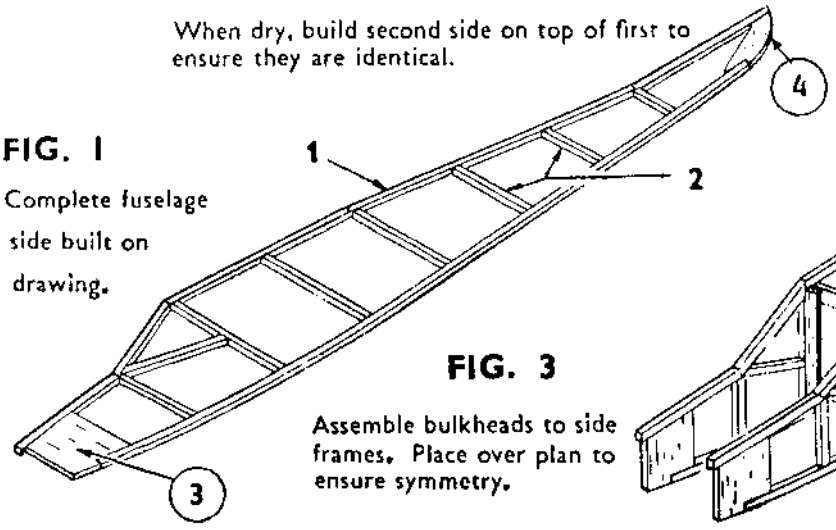


FIG. 1

Complete fuselage side built on drawing.

FIG. 3

Assemble bulkheads to side frames. Place over plan to ensure symmetry.

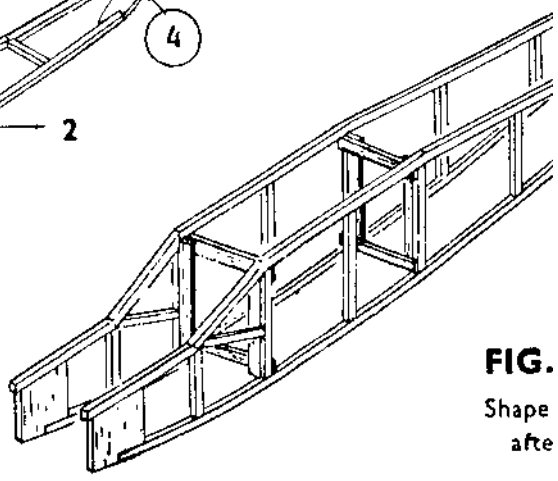
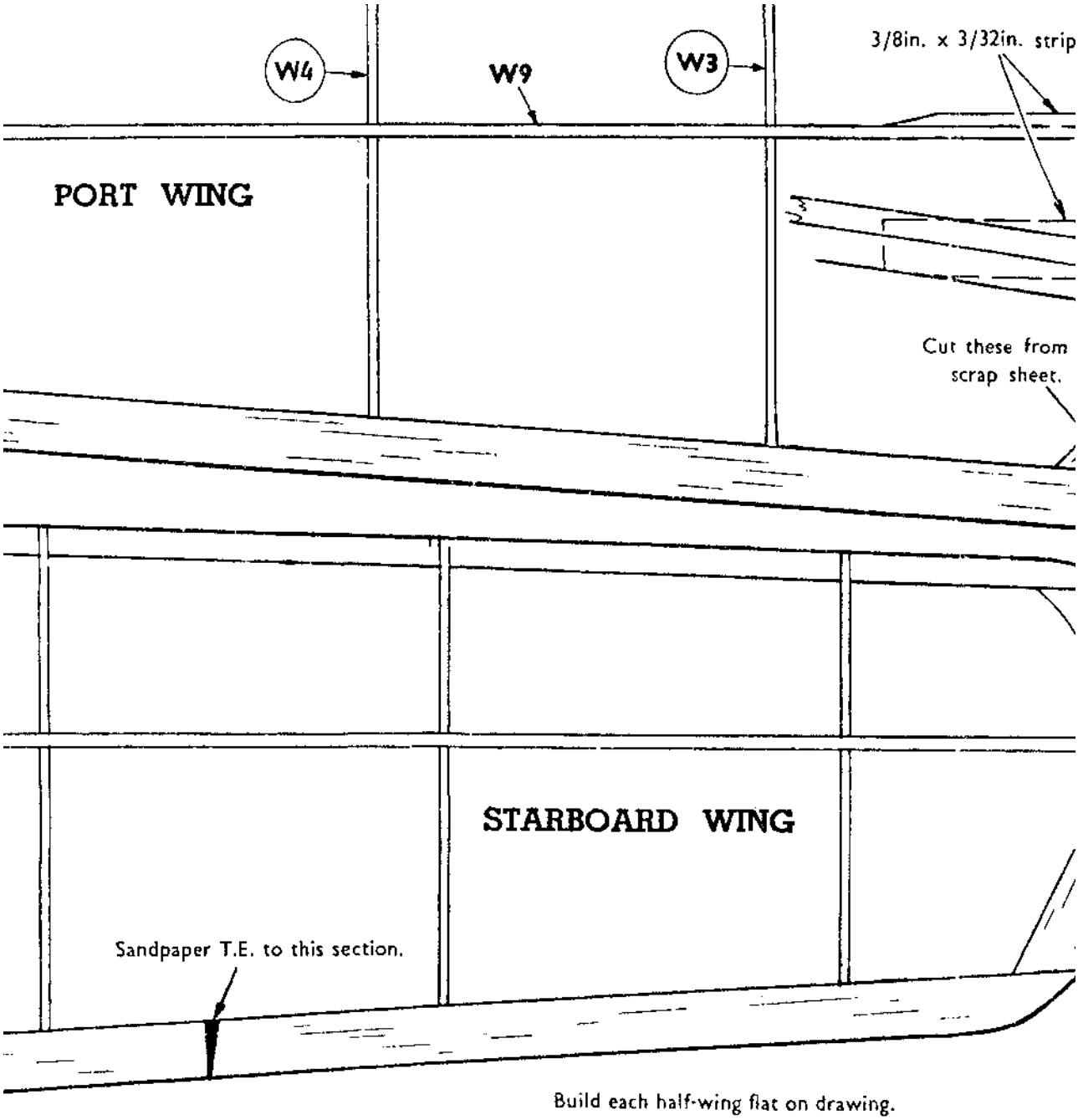


FIG.

Shape
afte



Build each half-wing flat on drawing.

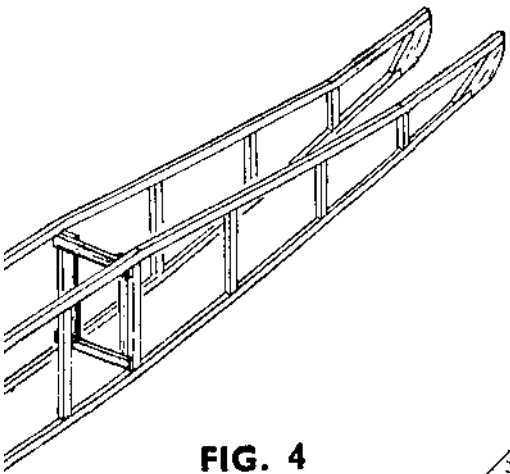
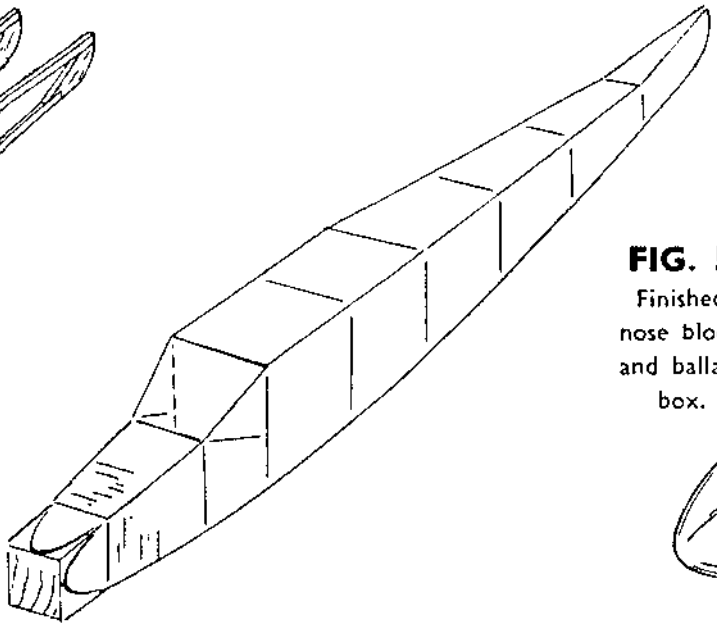


FIG. 4

Shape nose block after assembly.



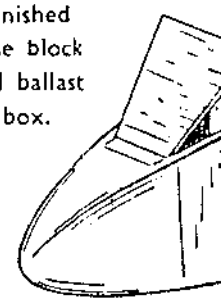
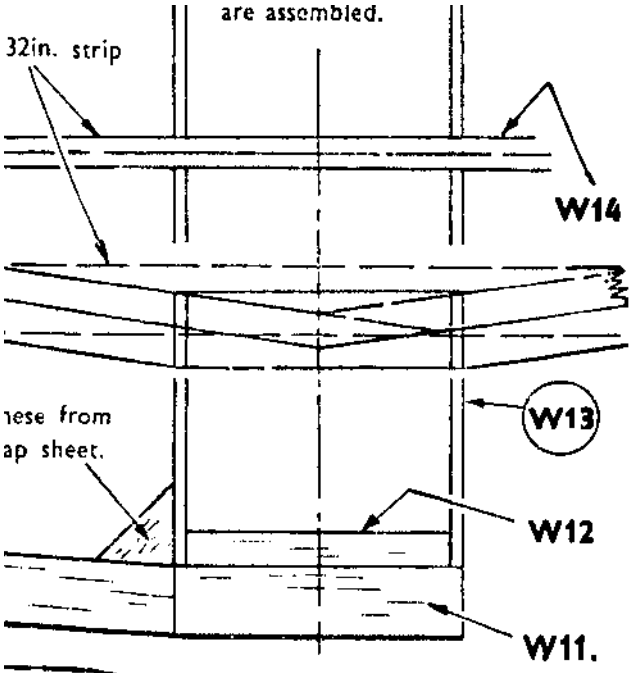
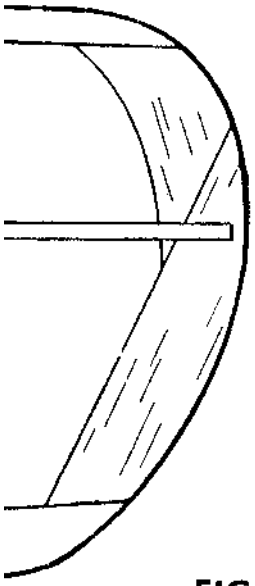
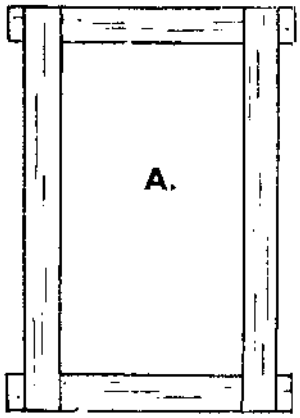


FIG. 5

Finished nose block and ballast box.







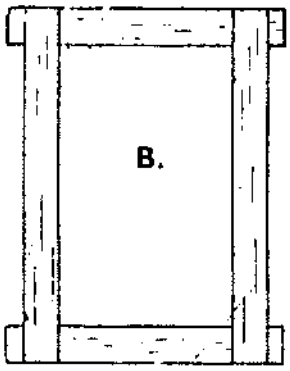
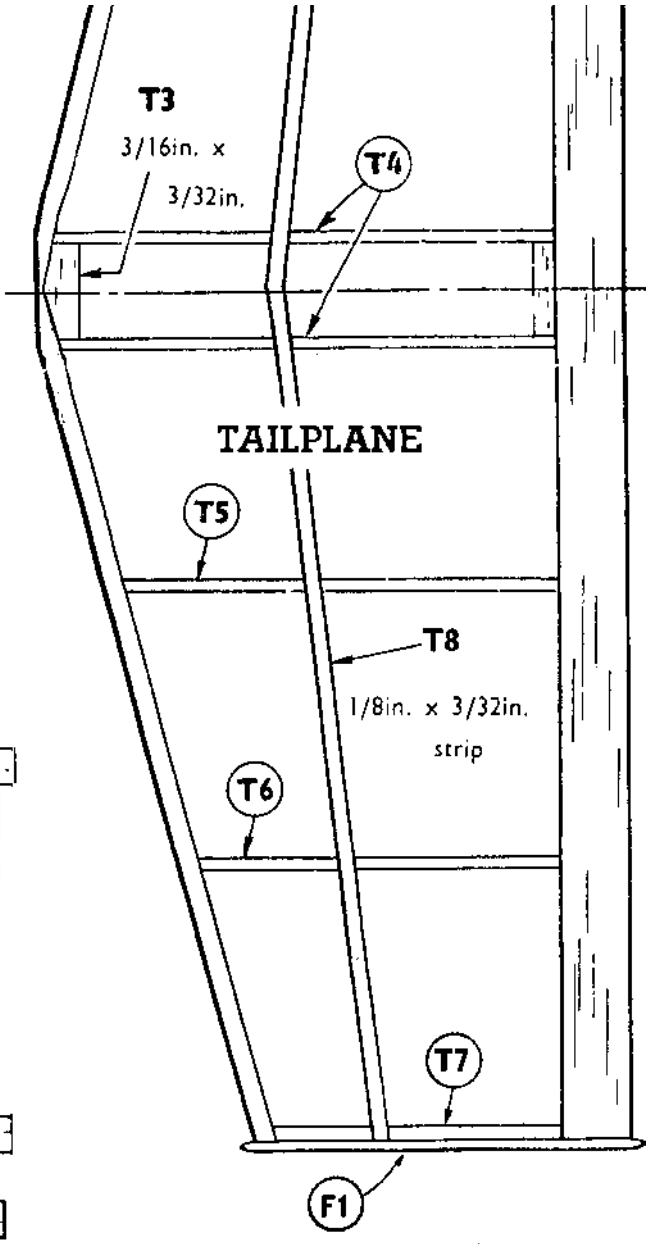
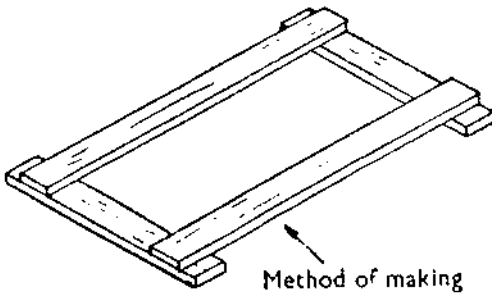


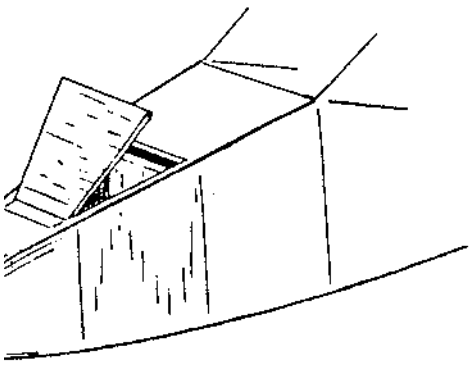
FIG. 2

Build up bulkheads of 3/16in. x 3/32in. strip.



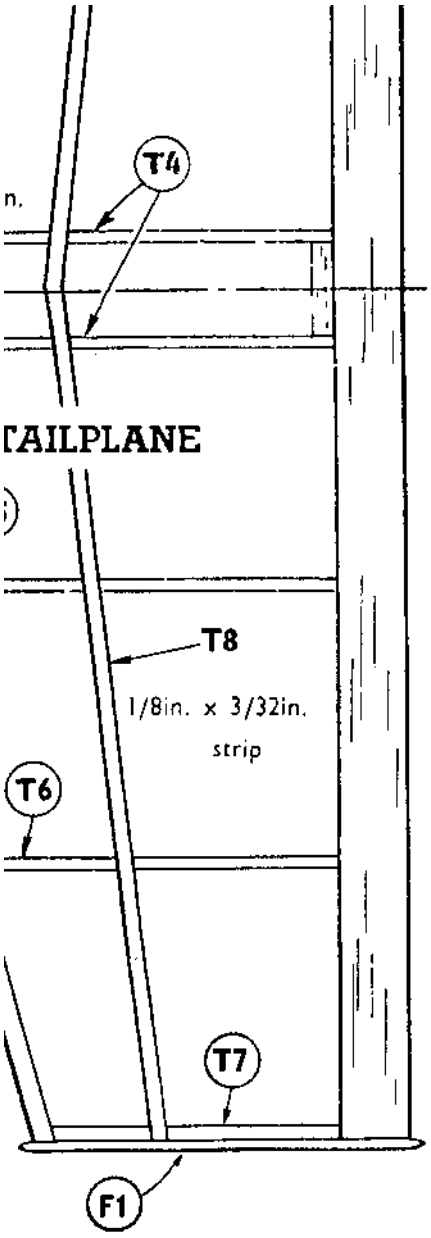


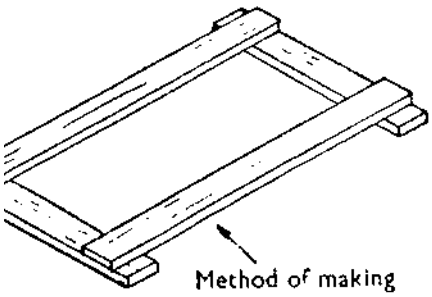
Method of making bulkheads.



SPECIFICATION :

WING SPAN	...	25 ins.
LENGTH O.A.	...	17¼ ins.
WING AREA	...	82 sq. ins.
WEIGHT	...	1¼ ozs.





Method of making bulkheads.

CABIN. It will be easier to fit this after the covering, but the following method should be used. First bend the callastoid to shape by gently creasing it where shown in the drawing. Apply cement to the edges of the framework at the centre first and hold the windscreen in place until set. Then cement the sides down.

WINGS. Build the two halves over the plan separately. First lay the leading and trailing edge W1 and W2 over the drawing, with pins placed either side where necessary. Then cement ribs W3—W6 in place, and tip pieces W7 and W8. Cut the spar W9 to length, as shown in the front view, allowing for the overlap joint, taper it at the tip, and cement it in place in the rib slots. When both sides are built, and the cement has set, remove them from the plan and trim the spars to length, making a lap joint of the main spar as shown. Lay the wing-halves over the port wing drawing, raise the tips 1¾in. and build the centre-section, using the strips W10, W11 and W12 as shown, and the spar piece W14, shaping them after assembly. Then add the centre ribs W13, and the gussets made from scrap. Sandpaper the leading edge and tips to shape, and smooth down the whole structure.

TAILPLANE. Pin down the leading and trailing edge strips T1 and T2 and jointing strips T3, cut from 1/4in. x 1/4in. Then cement the centre ribs T4, followed by ribs T5—7. Cement the spar T8 in the rib slots, and taper the ends. Sandpaper the leading edge and tips to shape.

FINS. These are ready-cut to shape, and only require sandpapering and cementing it to the ends of the tailplane, after the latter has been covered.

The tailplane is located on the fuselage at the front by cementing a short strip of balsa to the underside, to fit between the longerons. The tail can be offset slightly to obtain a circling glide if necessary.

COVERING. Cover the model with the paper supplied, in the following order—fuselage top and bottom, then sides. Wing and tailplane undersurfaces, then top. Use office paste or dope for fixing it. Cut the paper to the approximate shapes first, leaving a 1/4in. margin all round. Apply paste to the edges of the frame, then lay the tissue over it and pull gently all round. Do not attempt to get it drum tight, but aim at getting an even surface, with no deep wrinkles. The water-spraying and doping will tighten it.

Before doping, firstly brush or spray each part with water and leave to dry. Spray half a wing at a time, and pin it down to a flat board to prevent warping whilst it is drying. Do the same with the tailplane. When they are completely dry, give each part a coat of dope, and pin down the wing and tailplane again, when the dope begins to dry. A coat of clear cellulose lacquer over the whole of the model is beneficial.

Painting should be restricted to the fuselage or trimming at the edges to save weight.

ASSEMBLY. Use two 2½in. x 1/8in. elastic bands to hold the wing in place. They should be stretched diagonally over the centre-section and hooked over the dowels. Use two 1½in. x 1/16in. bands for the tailplane, stretched over the top of the tail, and hooked over the pins at the rear of the fuselage.

Check the rig of the complete model; the tailplane should be in line with the wing, and the fins upright. There should be no warps in the flying surfaces. If the model balances further back from the position shown on the drawing, add ballast weight to the nose; and if it is forward of this, remove some of the weight or raise the tailplane Trailing Edge.

FLYING. Choose a calm day if possible for the first tests. Hand-launch the model first to check the balance. If it shows a tendency to nose-up and stall, add more weight to the nose, and if the model dives to the ground, take weight out of the nose. If this fails to correct it, raise the tailplane Trailing Edge with a piece of card or 1/32in. balsa. This can be increased if necessary. It is almost impossible to know exactly what trimming a model will require until it is test-flown, but if the C. of G. is in the position shown on the drawing, and there are no warps in the wing or tailplane, the model should fly quite well straight away. A tendency for it to turn sharply either way indicate a warped wing, or tail offset too much, and this should be corrected. A wide turn is desirable to prevent the model flying too far in a straight line.

When a satisfactory glide is obtained, a tow-line launch can be attempted For this, a length of thin kite string with a ring attached to one end is required. Tie a piece of tissue paper just below the ring to help it disengage from the hook on the model. Use a reel if possible to facilitate winding in the line. Un-reel the line, loop the ring on to the hook on the model, and get an assistant to launch it (into wind) while you reel in the line. A running launch can be used to save reeling in if desired. If the model is inclined to weave from side to side when being towed, slow up the launching and do not release it until it has levelled out to its normal gliding angle.

Do not forget to put your name and address on the model before flying.

SPECIFICATION :

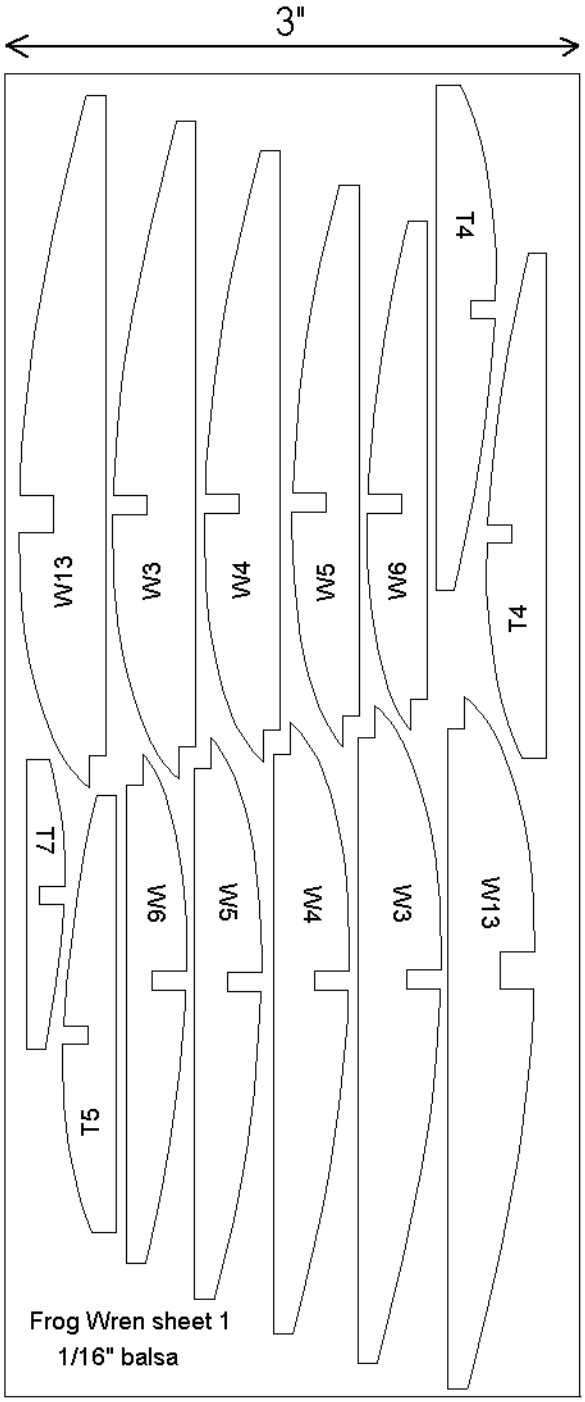
G SPAN	...	25 ins.
GTH O.A.	...	17¼ ins.
G AREA	...	82 sq. ins.
GHT	...	1¼ ozs.

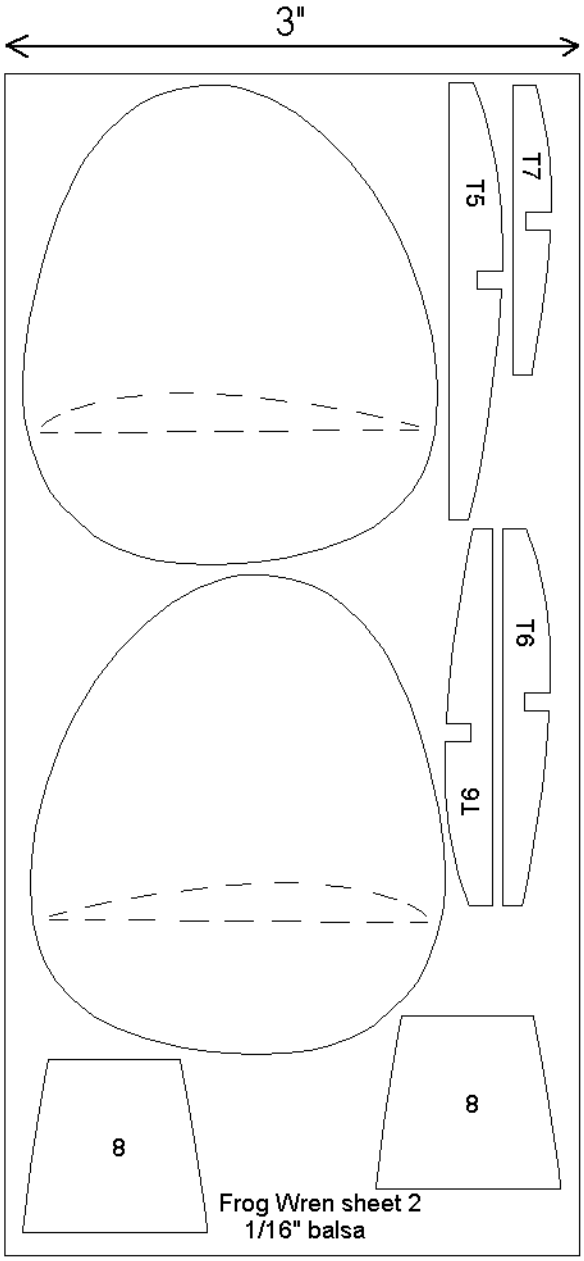
Designed and Produced in England by

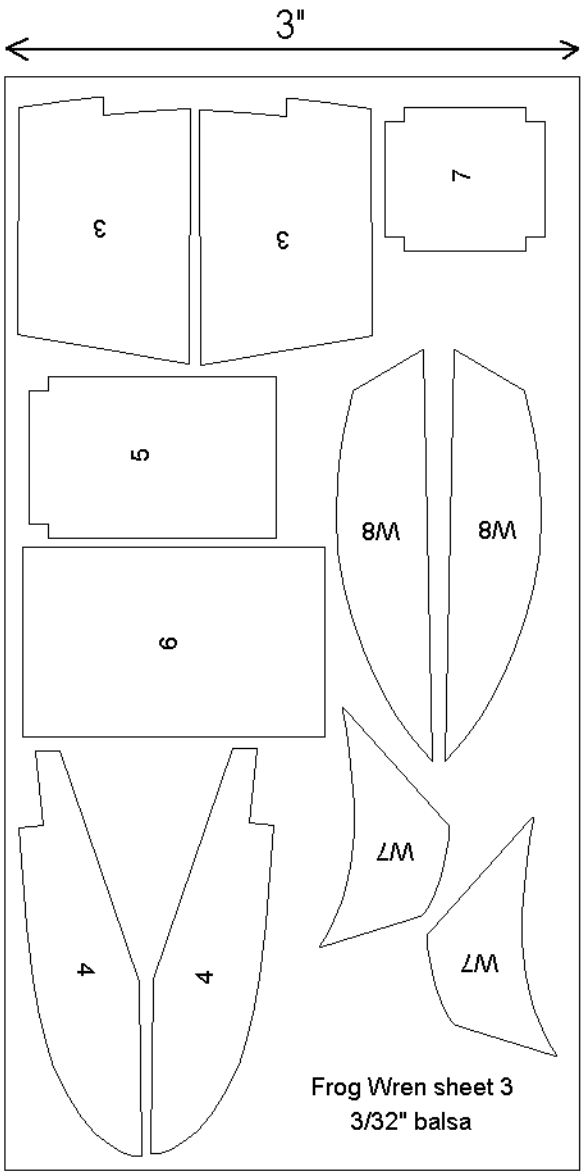
INTERNATIONAL MODEL AIRCRAFT, LTD.,

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

PRINTED IN ENGLAND. C.T.B.


3"
W13
W3
W4
W5
W6
T4
T4
T7
T5
W6
W5
W4
W3
W13
Frog Wren sheet 1
1/16" balsa


3"
T5
T7
T6
T6
8
8
Frog Wren sheet 2
1/16" balsa


3"
3
3
7
5
W8
W8
6
W7
W7
4
4
Frog Wren sheet 3
3/32" balsa