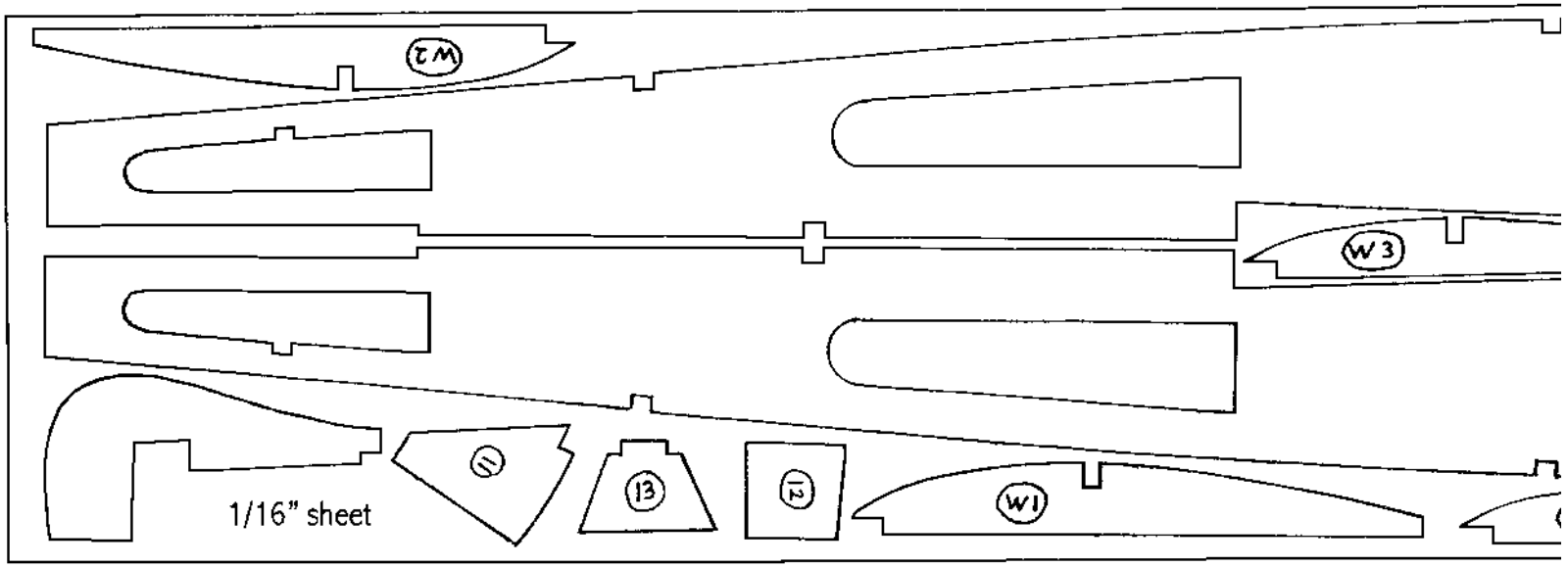
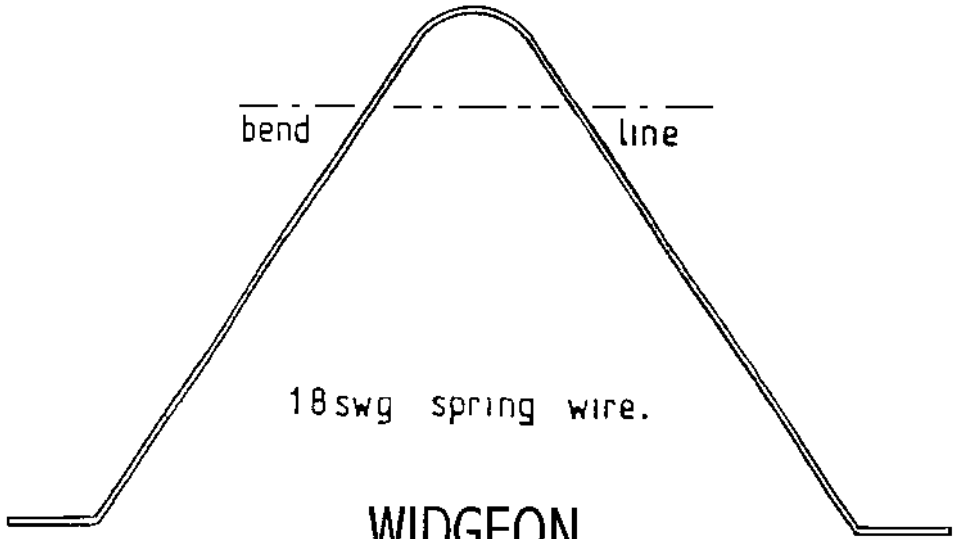
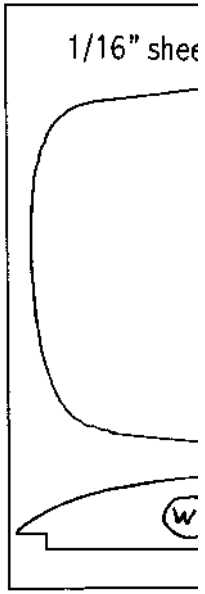
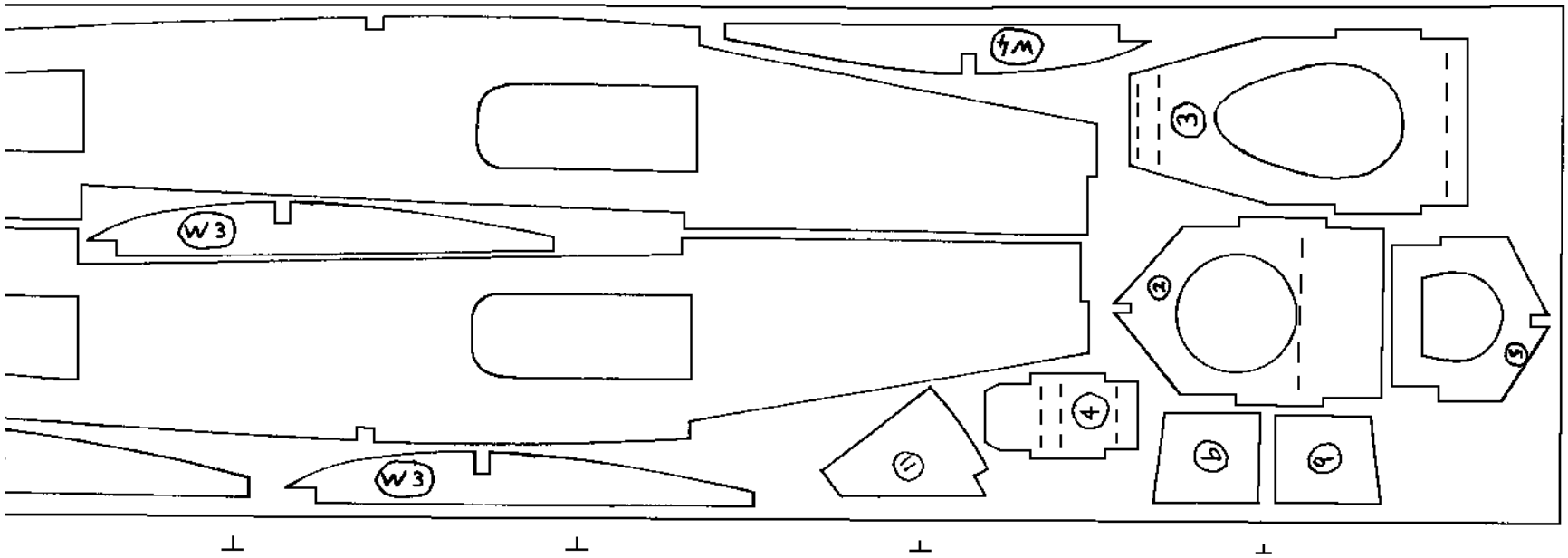
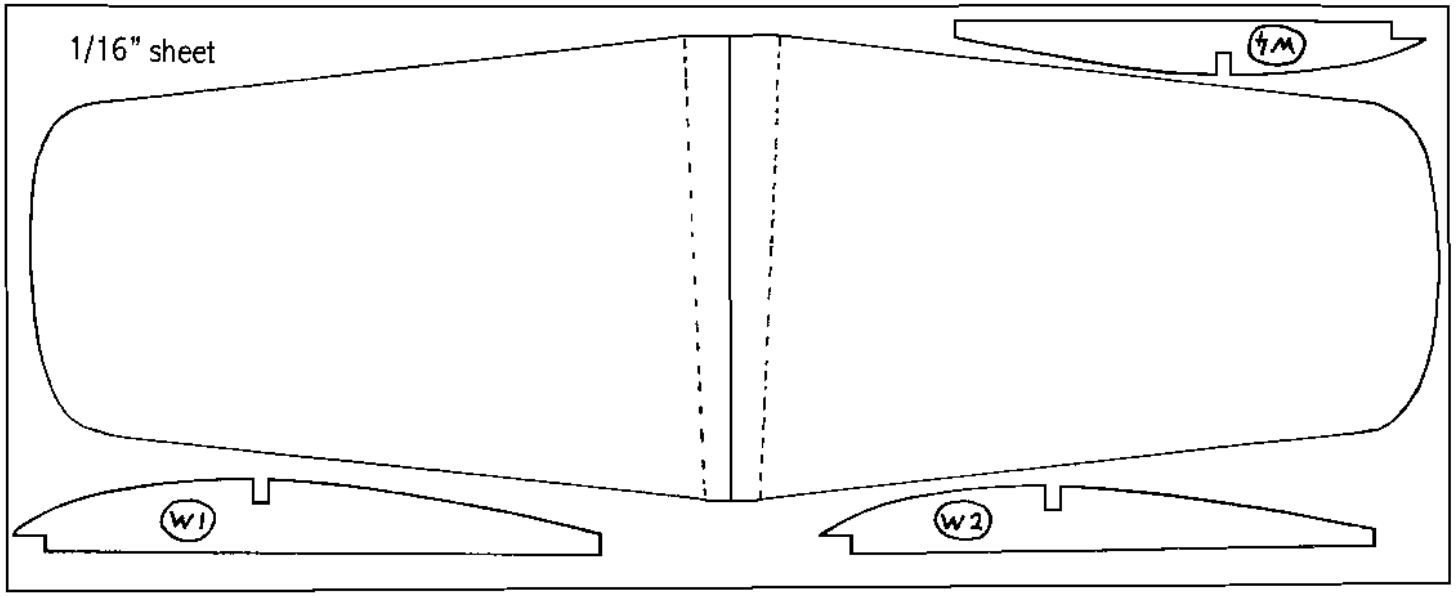

W2
W3
11
13
12
W1
1/16" sheet


bend
line
18 swg spring wire.

WIDGEON

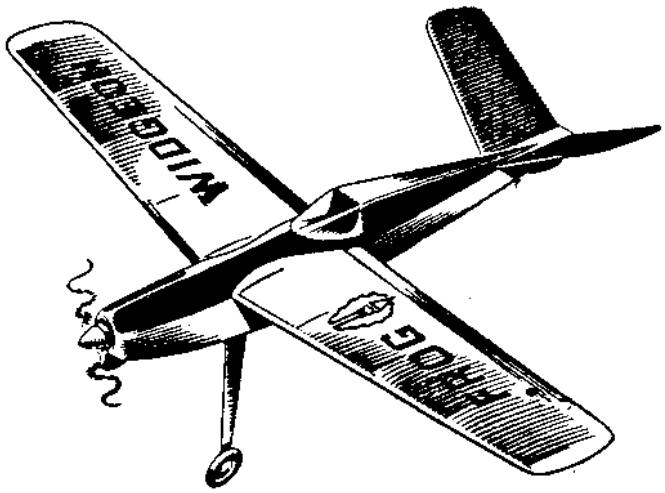

1/16" shee
W


W4M
W3
W3
W3
3
2
5
4
1
6
7

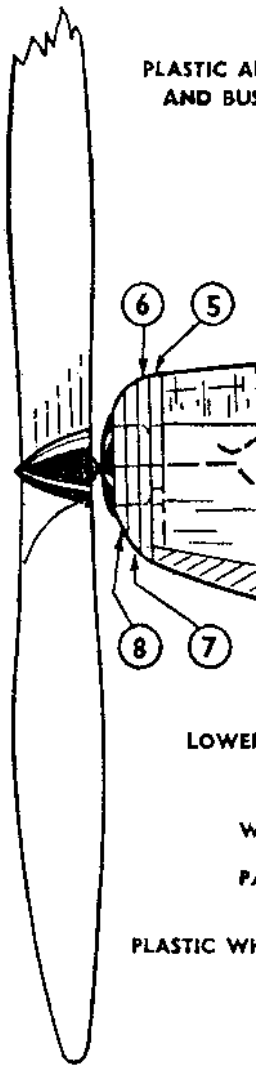

1/16" sheet
W4M
W1
W2

Senior Series

FROG TRADE MARK



VIEW OF FINISHED MODEL



PLASTIC A
AND BU

LOWE

W

P

PLASTIC W

INTRODUCTION.

This model is one of the Frog Senior-Series, which consists of a range of models of near-scale design and appearance, representing popular full-size light aircraft, all approximately 18in. span.

They embody very simple and quick constructional methods, as in the Frog Junior Series models, all the main parts being ready-cut to shape, and only require cementing together.

To ensure a satisfactory job, study the plan and check the parts with it before commencing. Assemble the model step by step as shown.

Cement and dope are not included in this kit, but they can be bought at any model shop. Use quick-drying balsa cement such as Frog Universal. You will also need a balsa-cutting knife or a razor blade, and a few pins.

When you have built this model, remember there are many others in this series equally attractive.

THIS KIT CONTAINS :

- 1 Plan and Instructions.
- 1 Balsa Sheet of cut-out fuselage sides.
- 1 Balsa Sheet of cut-out tailplane and fin.
- 1 Balsa Sheet of cut-out bulkheads, ribs, etc.
- 1 Balsa Sheet of cut strips.
- 1 Balsa Block for front lower cowl.
- 1 Shaped wire undercarriage.
- 1 Propeller with shaft and bush.
- 1 Piece cellastoid for windscreen.
- 1 Piece cane for motor pin.
- 2 Wheels.
- 2 2in. elastic bands for wing.
- 2 9in. elastic bands for motor.
- 2 Transfers.
- 1 Piece tissue for covering.
- 1 Piece sandpaper.

} in envelope.

BU

FUSELAGE ASSEMBLY.

Carefully remove
knife or a piece of razo
by cementing pieces of
Then cement bulkheads
fig. 1. Make sure they
other side in place. W
and the front piece 5, a

Fit the top front s
fig. 2. The rear stringe

"WIDGEON"

SIDE VIEW (Full size)

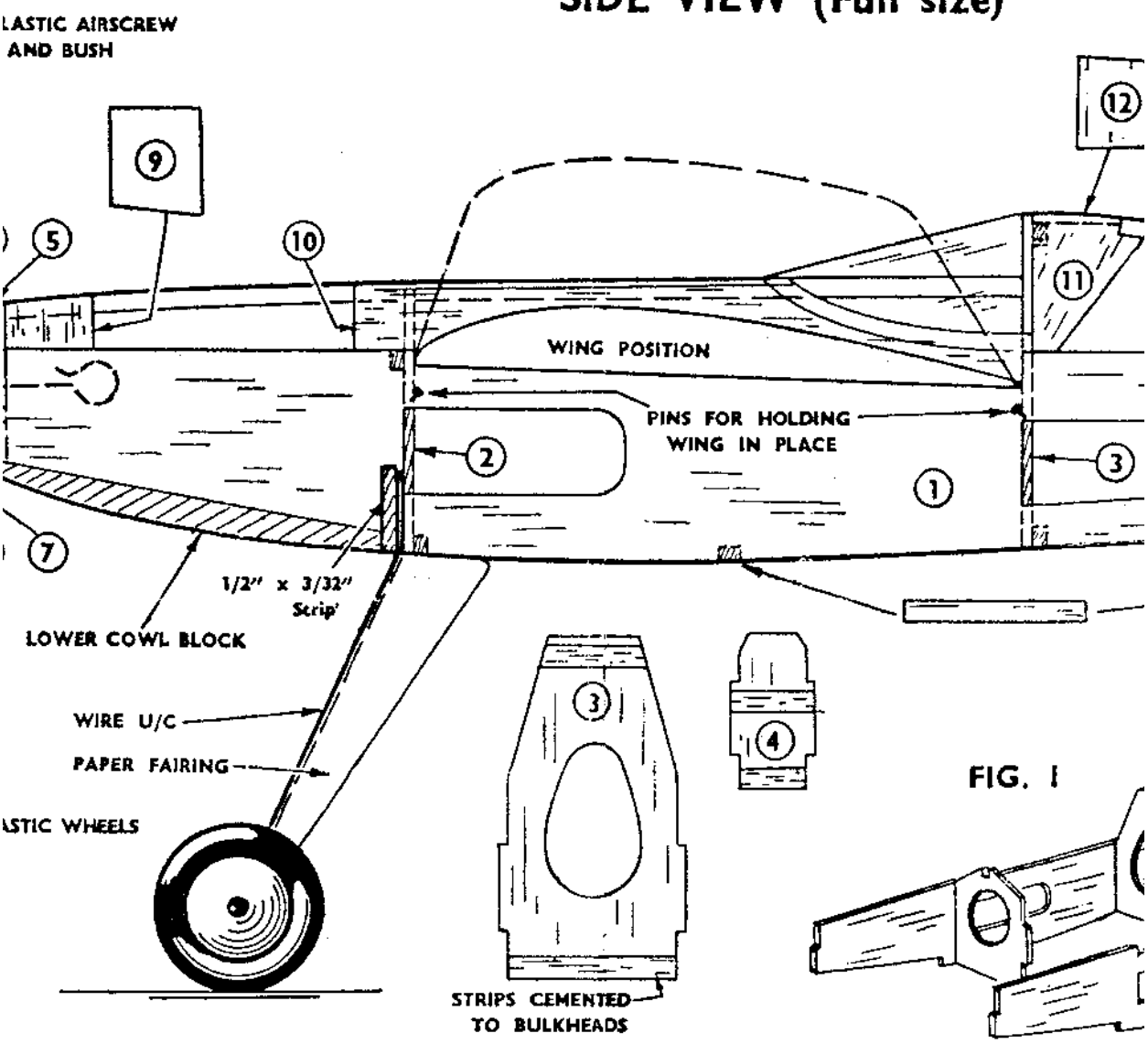


FIG. 1

BUILDING INSTRUCTIONS.

SEMBLY.

emove all the parts from the balsa sheet using a balsa of razor blade to separate them with a clean edge. Start ieces of balsa strip 1/8in. x 3/32in. to bulkheads 2, 3 and 4. ulkheads 2 and 3 to one of the side panels 1, as shown in ire they are upright, and allow to dry. Then cement the ace. When these are set, assemble the other bulkhead 4, iece 5, and cement the rear ends of the fuselage together.

front stringer in place, followed by pieces 9 and 10. See stringers are fitted after the tailplane is assembled.

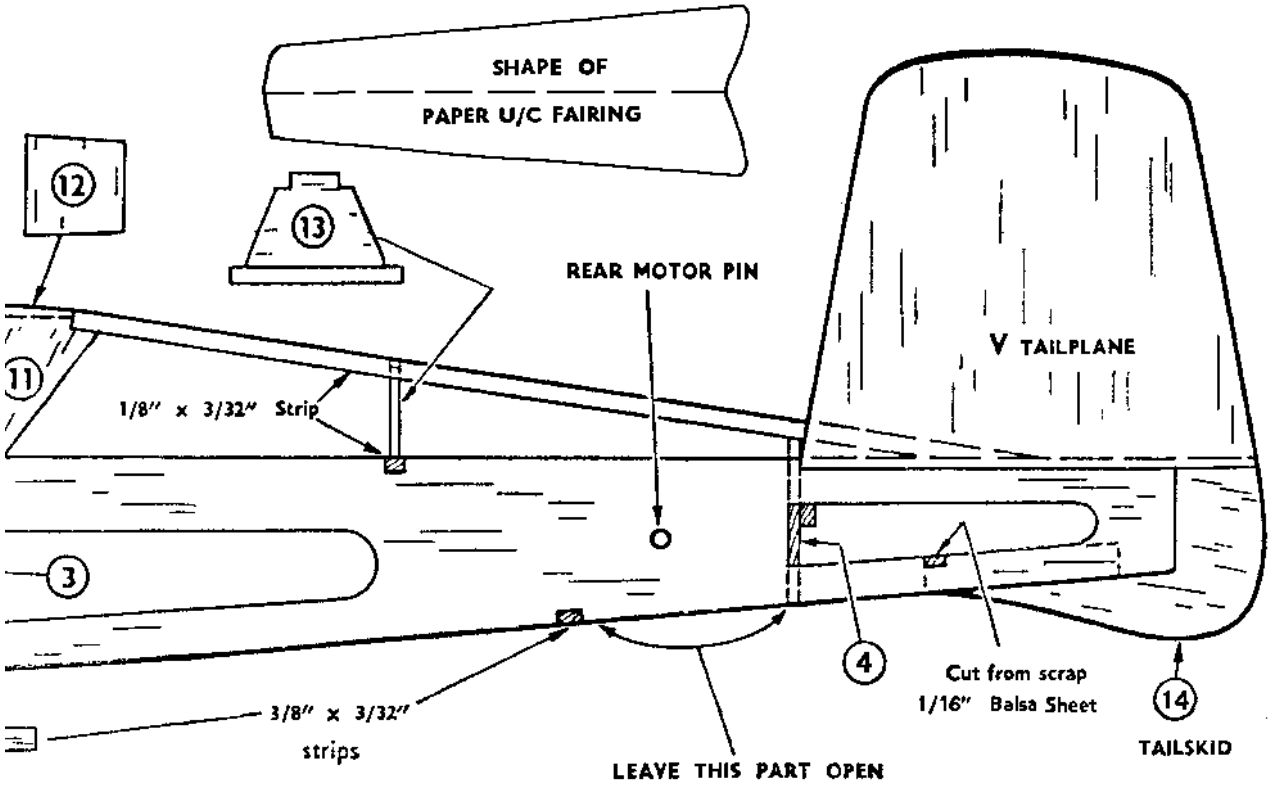
UNDERCARRIAGE.

Bend the top part of the shaped wire piece f side view drawing; then cement it into place in fr the piece of 1/2in. x 3/32in. strip against the w Then fix the lower cowling block, 3/16in thick, be piece 5, and level it off flush at the front. T front pieces 6, 7 and 8 in place, and round off the cowl block to obtain a smooth shape.

Fit the wheels in place and bend over the en small paper washers to the axles to hold them on from note paper to the shape shown on the dr glue them to the wire legs.

18" SPAN RUBBER-POWERED

Cat. No. 631 FK



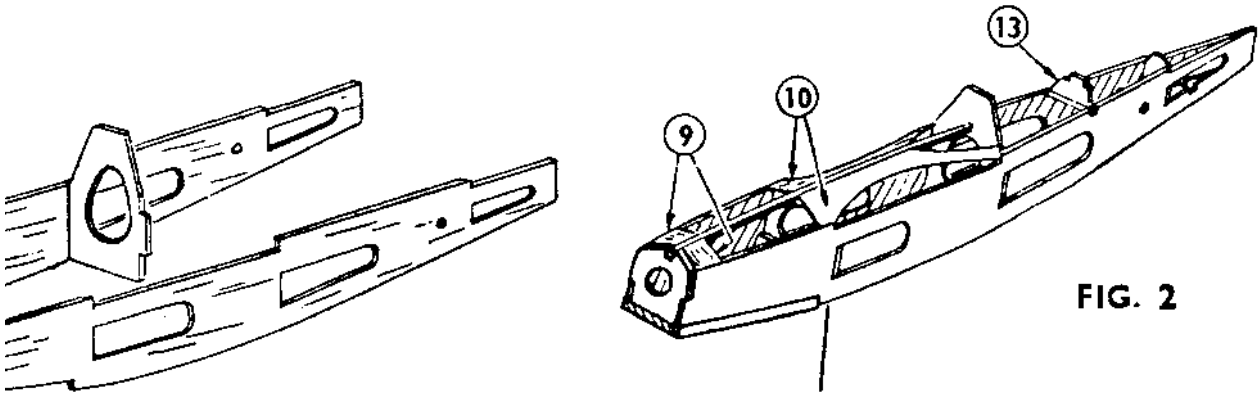


FIG. 2

e piece forward as shown in the
'ace in front of bulkhead 2, with
st the wire to hold it in place.
thick, between this and the nose
'ront. Then cement the other
l off the corners of these and the

er the ends of the wire, or glue
them on. Cut the two fairings
n the drawing; fold them, and

TAILPLANE AND FIN.

Remove the shaped tailplane from the balsa panel, round off the edges and sandpaper the surface smooth. To form the dihedral 'V', bend the tailplane at the two 'score' lines, then place it on a flat surface with the tips raised 2½in., and cement along the score lines. Then cement it to the fuselage as shown in the side view. Cement parts 11 and 12 in place against bulkhead 3, and the half-bulkhead 13 together with the strip which fit into the notches in the side panels. Then the rear stringers can be cemented into place.

Cut away part 10 to the shape of the cockpit, and cement the shaped cellastoid cabin in place, holding it in position until it has set.

Cement the lower cross-struts in place, together with the tailskid 14.

Remove any sharp corners with sandpaper, and smooth down the whole model to obtain a good finish. Apply a coat of dope or clear lacquer before covering.

WING.

This is built over the plan in two halves as shown in fig. 3. It is advisable to pin a sheet of greaseproof or tracing paper over the plan to prevent the cement sticking to it.

Pin down the leading and trailing edges over the drawing, then remove the ribs W1—W4 from the printed sheet and cement these into place, together with the tip pieces. Then take two 1/8in. x 3/32in. strips for the spars, trim the ends as shown in fig. 3A, and cement them in place as shown in fig. 3. When both sides are set, lift them from the plan, and assemble them, with the tips raised as in fig. 4. Build up the centre section with short pieces of the same materials as the wing, and well-cement round the spar joint. See fig. 5.

When it is quite set, remove the wing from the plan, and shape the trailing edge as shown in fig. 3. Round off the leading edge and tips, smooth down the whole wing and apply a coat of dope before covering.

COVERING.

The fuselage and wing require covering with the tissue paper supplied. Start with the
strips of tissue wide enou
paste for sticking it to the
fuselage, stretch a strip of
Trim off any excess, and s
other sides, leaving a gap o

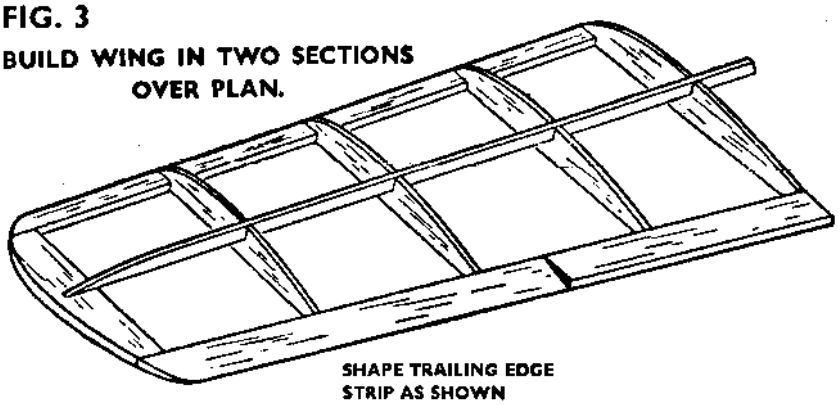
When the paste is dry
it, and when it is thorough
also help to tighten the pa
tailplane and fin.

Cover the wing with 4
and apply the paste to the
the paper to each rib. Wh
section, and keep the pape
airfoil shape.

When the covering is
to shrink it, and pin it dow
it warping.

FIG. 3

BUILD WING IN TWO SECTIONS OVER PLAN.



SHAPE TRAILING EDGE STRIP AS SHOWN

FIG. 3

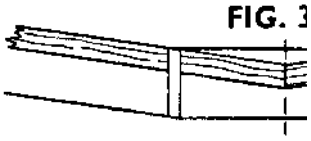
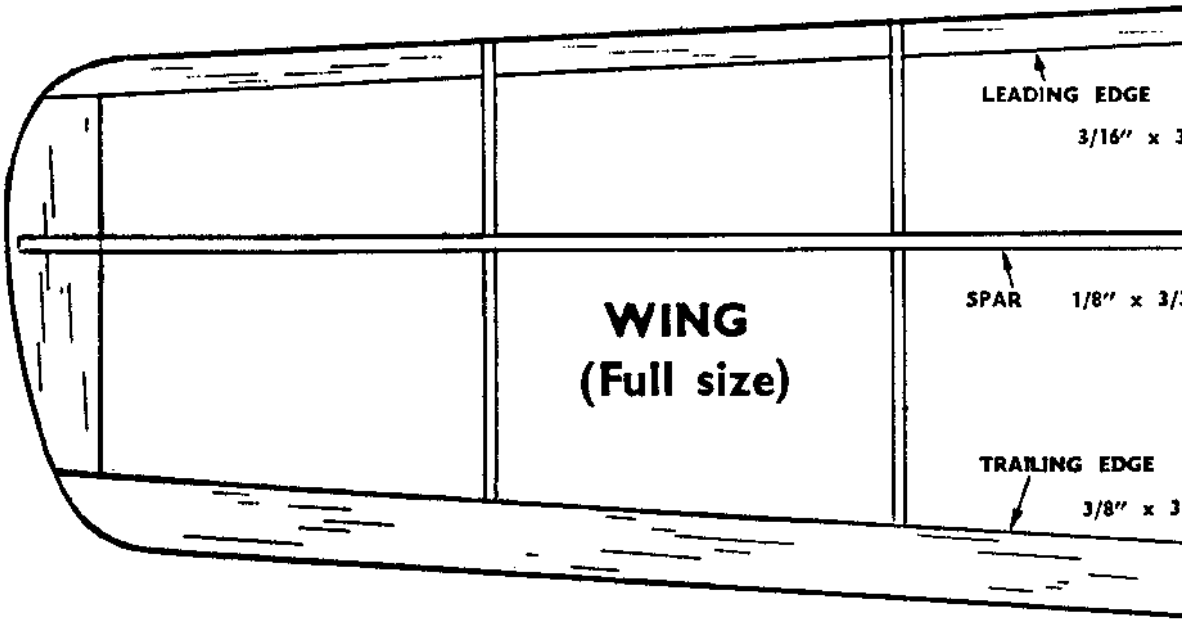


FIG. 4

$1\frac{1}{4}$" DIHEDRAL



"WIDGEON"

the fuselage and cover each side separately. Cut enough to allow a small overlap. Use dope or to the framework. Apply some to one side of the ip of the tissue over it and smooth out any wrinkles. and smooth down the edges. Repeat this for the gap on the bottom surface below the rear motor pin.

is dry, lightly spray the tissue with water to shrink oroughly dry again, apply a coat of dope. This will the paper. Apply a thin coat of clear lacquer to the

with 4 separate pieces. Start with the bottom surface to the outer edges only. There is no need to stick . When covering the top surface start at the centre- e paper taut from end to end, to help preserve the

ing is complete, lightly spray the paper with water it down to a flat board when it is half-dry, to prevent

When it is dry, dope each half-wing separately, as before.

DECORATING.

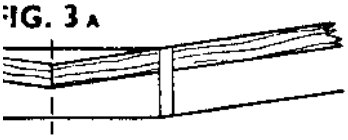
The appearance of the finished model can be ir by the addition of a little cellulose paint. This sh the fuselage, to save weight, unless it is sprayed c painted by hand, applying it quickly and evenly wi not put it on heavily or the model will not fly well.

The transfers can be affixed to the wing or fin, ar or decoration required.

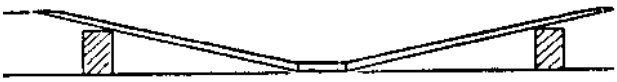
MOTOR.

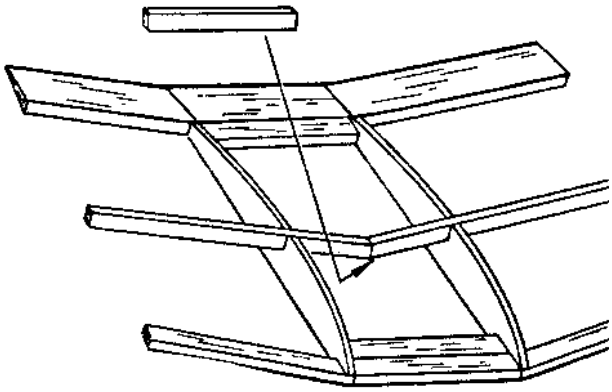
This is composed of two 9in. elastic bands Lubricate them with Frog Rubber Lubricant or C them into the fuselage with the help of a length of a hook at one end of the wire and insert it into fuselage. (If a thread is being used, tie a weight it through).

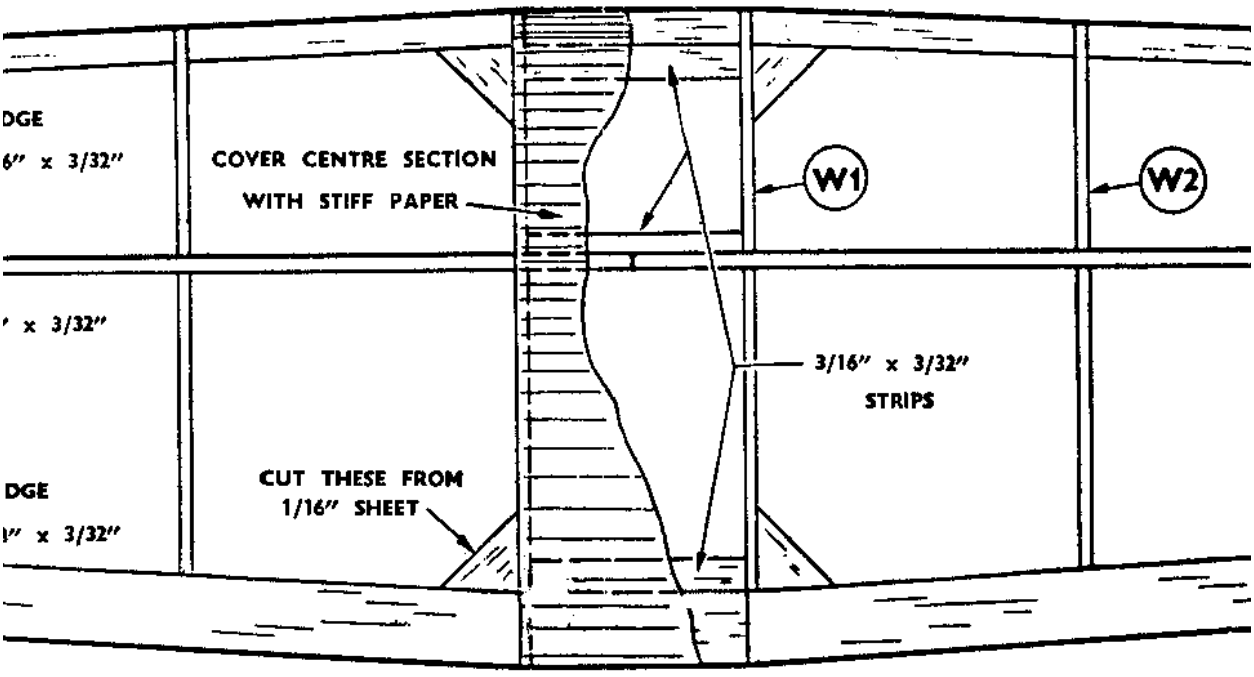
IG. 3 A



IG. 4 RAISE WING-TIPS AS SHOWN, TO OBTAIN DIHEDRAL WHEN ASSEMBLING THE TWO HALVES.







:parately, and pin down again

can be improved considerably
This should be restricted to
prayed on lightly. It can be
venly with a soft brush. Do
fly well.
or fin, and any other lettering

: bands which are supplied.
nt or Castor Oil, and insert
ngth of wire or thread. Bend
it into the front end of the
weight to one end and drop

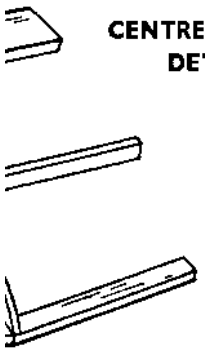


FIG. 5

CENTRE-SECTION DETAIL

Hook the bands on to it through the opening at the rear and insert the rear motor pin (cane) through the holes in the fuselage and through the loops of elastic. Pull the bands out through the front, and hook them on to the airscrew shaft (complete with Airscrew).

The wing is held in place with two elastic bands stretched over the centre-section, and hooked onto the pins pushed into bulkheads 2 and 3 in the fuselage.

The model is now complete and ready for flying. A drop of thin oil on the airscrew shaft will improve the running.

FLYING.

This model is intended to be flown out of doors, but choose a calm day for your first test.

Test-glide the model first to check the balance. Hand-launch it in a slight downward direction. If it dives to the ground, carefully bend up the rear edges of the tailplane, known as elevators, or glue a small weight in the rear end of the fuselage. If the model climbs steeply and stalls, bend the elevators down slightly, and/or add a small weight to the nose of the fuselage. A small nail or drawing pin can be pushed into the cowl block for this.

When the glide seems satisfactory, put a few turns on the motor and launch the model (into wind) if any. The turn can be adjusted by bending the fin, or by twisting the wing slightly.

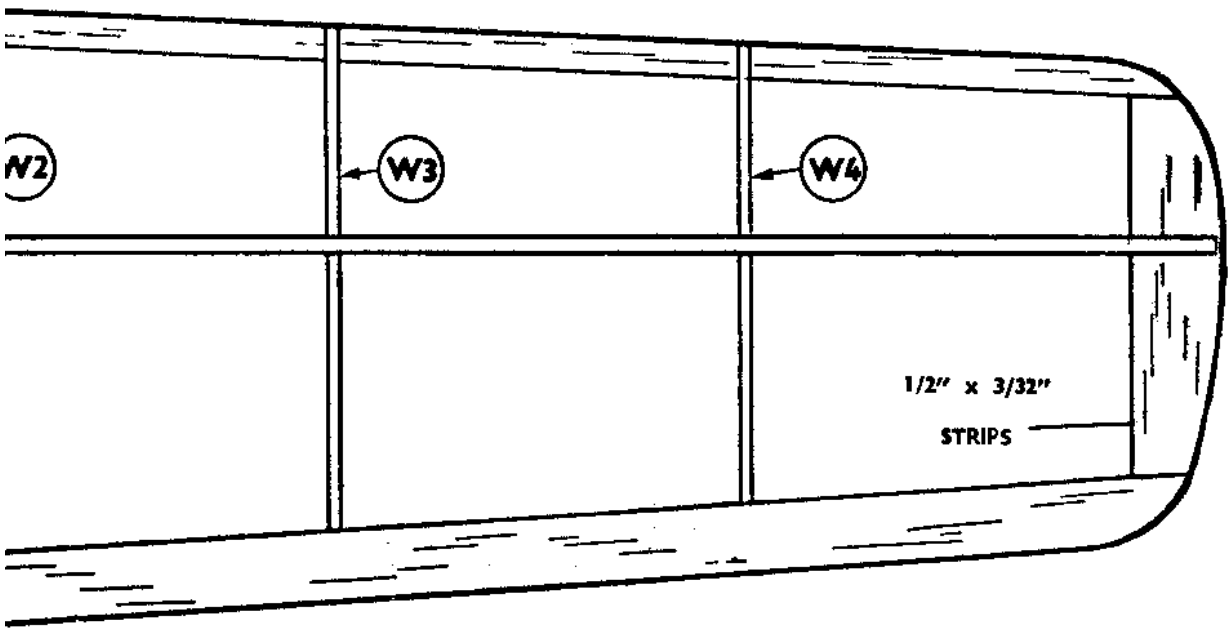
Increase the turns on the motor gradually, up to a maximum of approximately 350; if the motor is not lubricated, the turns must be limited to 200. An unlubricated motor will wear and break very quickly Stretching the elastic while winding will enable more turns to be obtained.

This model will take-off from the ground without assistance. Having wound the motor, place the model on a smooth surface, and release it directly into wind.

Designed and Made in England by

INTERNATIONAL MODEL AIRCRAFT LTD.

MORDEN ROAD, MERTON, LONDON, S.W.19.



Printed in England.