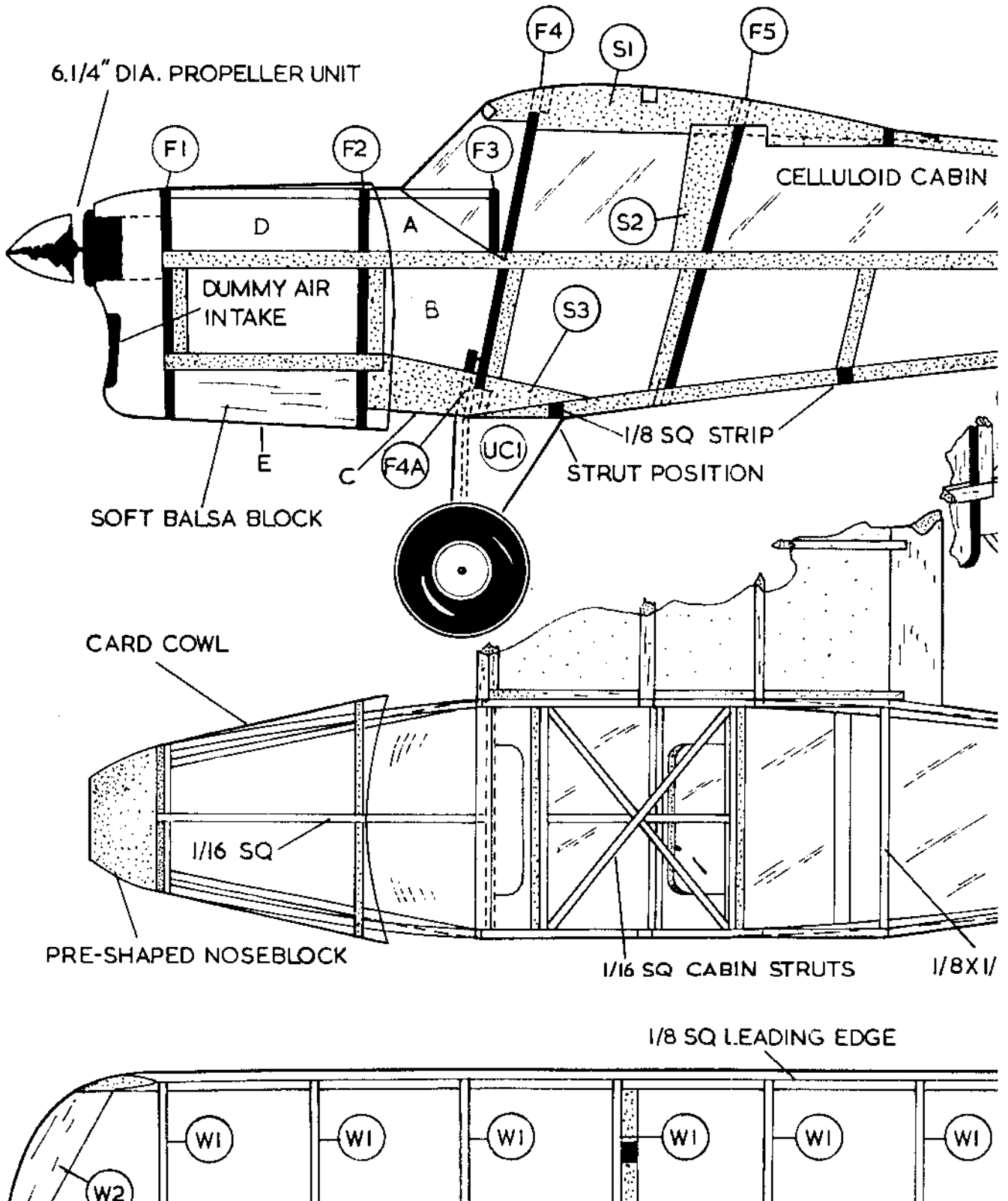


# FROG



# DE-LUXE SCALE S AUSTE



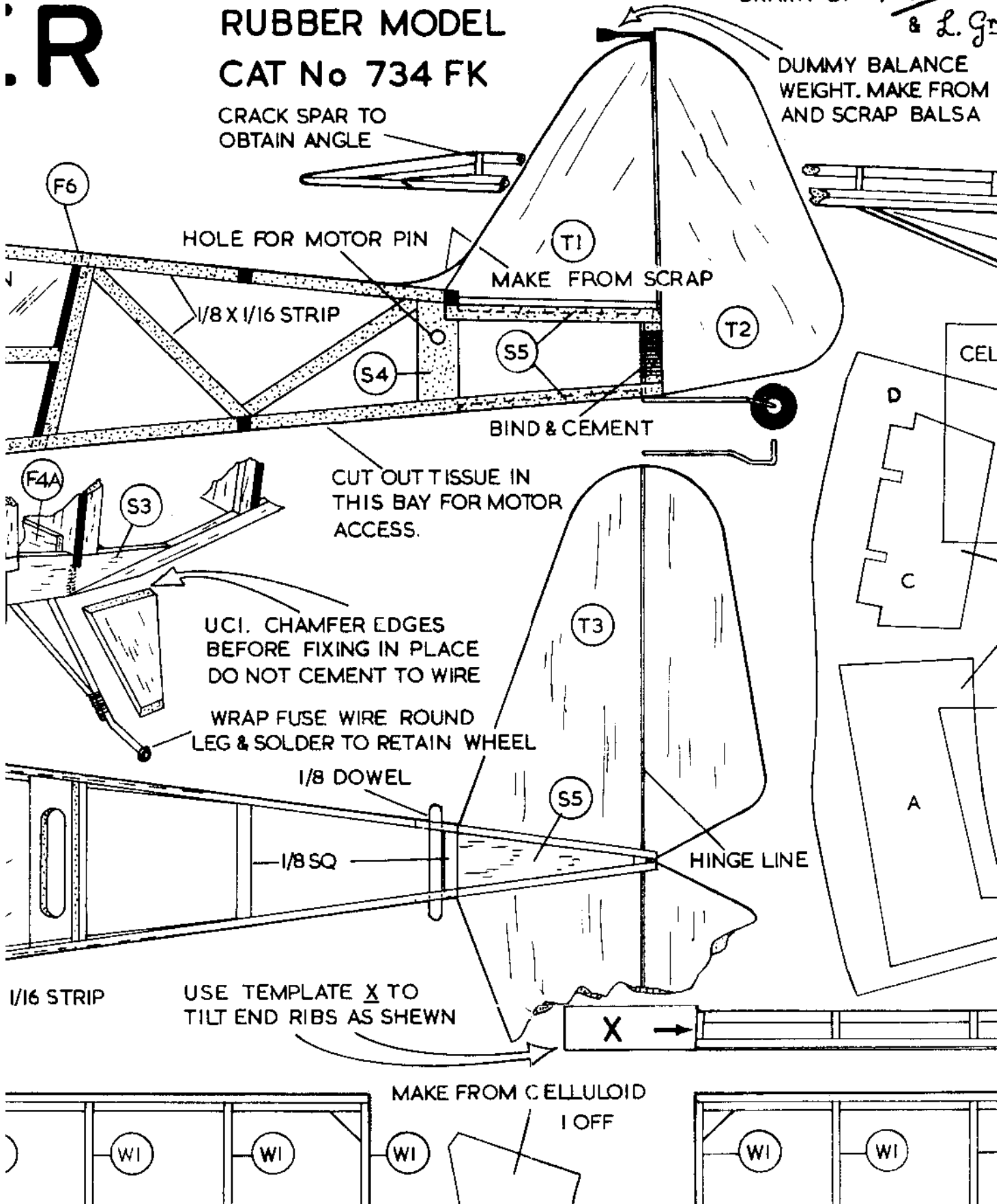
SERIES  
**R**

21" SPAN  
RUBBER MODEL  
CAT No 734 FK

DESIGNED &  
DRAWN BY *Bill Kane*  
& L. Gr

CRACK SPAR TO  
OBTAIN ANGLE

DUMMY BALANCE  
WEIGHT. MAKE FROM  
AND SCRAP Balsa



UCI. CHAMFER EDGES  
BEFORE FIXING IN PLACE  
DO NOT CEMENT TO WIRE

WRAP FUSE WIRE ROUND  
LEG & SOLDER TO RETAIN WHEEL

MAKE FROM CELLULOID  
1 OFF

1/16 STRIP

USE TEMPLATE X TO  
TILT END RIBS AS SHEWN

X →

WI

WI

WI

WI

WI

Max.

Green.

M PIN

BUILD UP STRUTS OVER PLAN USING 1/16 SQ. & 3/16 X 1/16. MAKE ONE LEFT & ONE RIGHT

WRAP JOINT WITH TISSUE

SIDE CABIN PATTERN 2 OFF

CELLULOID

CHAMFER ENDS OF STRUT

F4

T3

CELLULOID

B 2 OFF

TOP CABIN PATTERN 1 OFF

CUT OUT OR PAINT BLACK

COWL PATTERNS MAKE FROM THIN CARD OR NOTEPAPER

BIND WITH FUSE WIRE & SOLDER

BEND WIRE TO THIS SHAPE

E

F4

F6

F5

POSITION OF 3/16 X 1/16 STRIP ON FORMERS F4, F5, F6.

REAR VIEW OF STARBOARD WING

W1

W1

W1

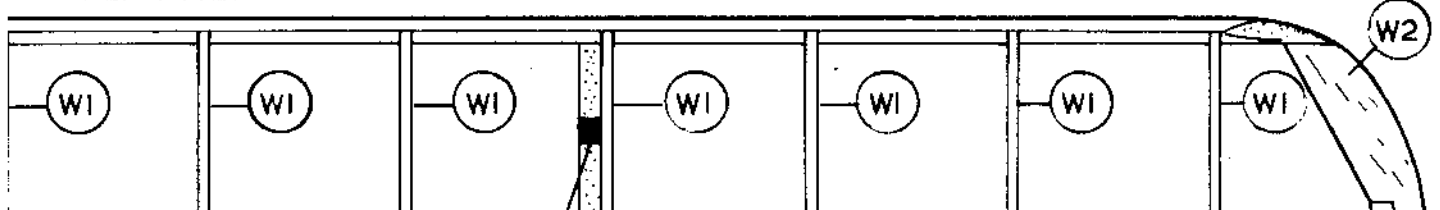
W1

W1

W1

W1

W2

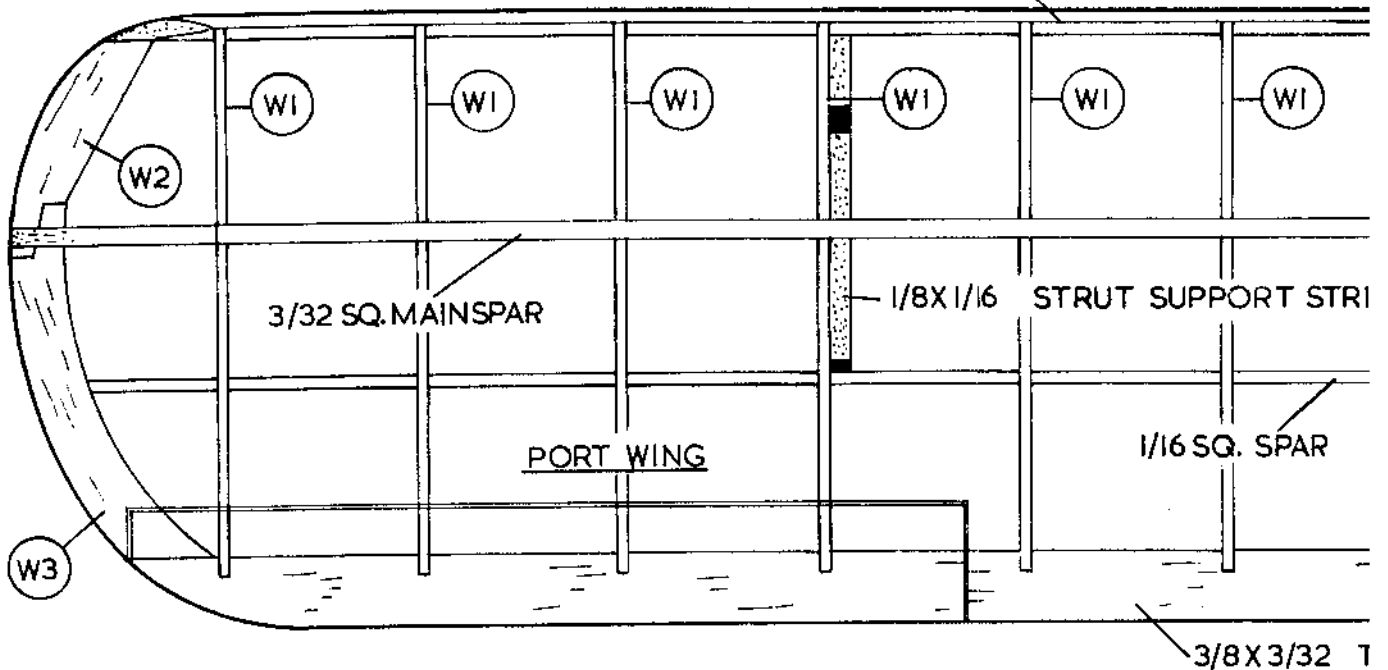


PRE-SHAPED NOSEBLOCK

1/16 SQ CABIN STRUTS

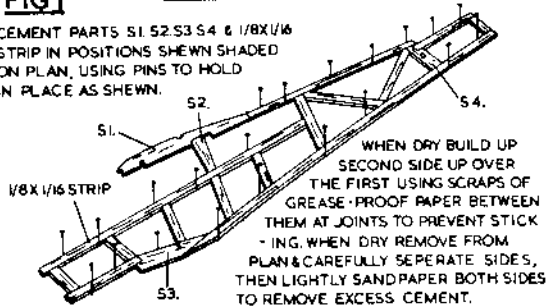
1/8 X 1/16

1/8 SQ LEADING EDGE



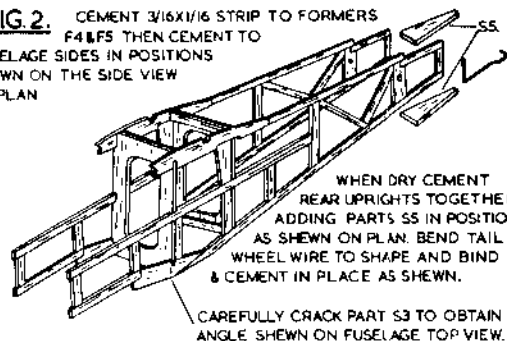
**FIG 1** FUSELAGE CONSTRUCTION

CEMENT PARTS S1 S2 S3 S4 & 1/8X1/16 STRIP IN POSITIONS SHEWN SHADED ON PLAN, USING PINS TO HOLD IN PLACE AS SHEWN.



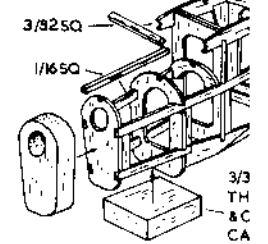
WHEN DRY BUILD UP SECOND SIDE UP OVER THE FIRST USING SCRAPS OF GREASE-PROOF PAPER BETWEEN THEM AT JOINTS TO PREVENT STICKING. WHEN DRY REMOVE FROM PLAN & CAREFULLY SEPERATE SIDES, THEN LIGHTLY SANDPAPER BOTH SIDES TO REMOVE EXCESS CEMENT.

**FIG 2** CEMENT 3/16X1/16 STRIP TO FORMERS F4 & F5 THEN CEMENT TO FUSELAGE SIDES IN POSITIONS SHEWN ON THE SIDE VIEW OF PLAN

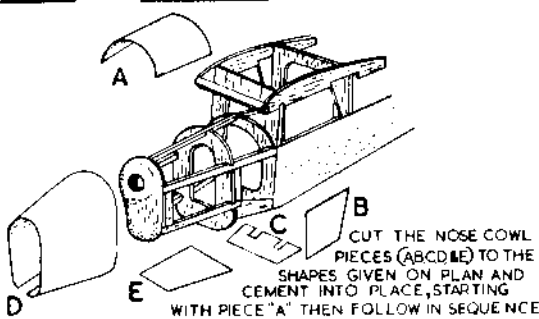


WHEN DRY CEMENT REAR UPRIGHTS TOGETHER, ADDING PARTS S5 IN POSITION AS SHEWN ON PLAN. BEND TAIL WHEEL WIRE TO SHAPE AND BIND & CEMENT IN PLACE AS SHEWN. CAREFULLY CRACK PART S3 TO OBTAIN ANGLE SHEWN ON FUSELAGE TOP VIEW.

**FIG 3** NEXT CEMENT FORMERS IN PLACE HOLDING WITH ELASTIC BANDS UNTIL ADD 1/16 SQ NOSE STRINGER & CABIN STRUTS AS SHEWN ON PLAN VIEW.

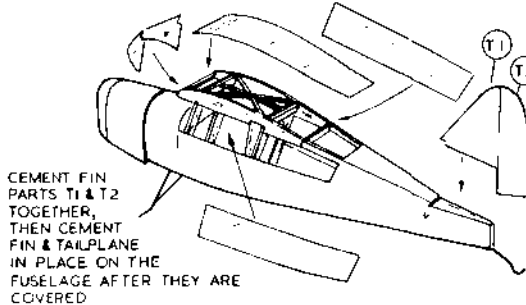


**FIG 4** NOSE COWL



CUT THE NOSE COWL PIECES (A B C D E) TO THE SHAPES GIVEN ON PLAN AND CEMENT INTO PLACE, STARTING WITH PIECE "A" THEN FOLLOW IN SEQUENCE

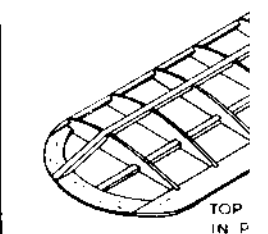
**FIG 5** COVER FUSELAGE WITH TISSUE, EXCEPT WHERE CABIN WINDOWS FIT. CUT WINDOWS TO SHAPE & FIX THEM IN PLACE WITH CEMENT



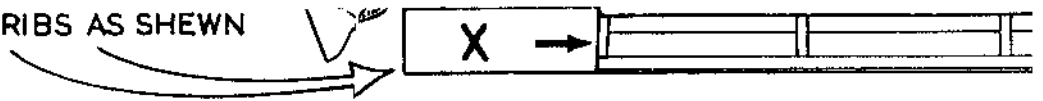
CEMENT FIN PARTS T1 & T2 TOGETHER, THEN CEMENT FIN & TAILPLANE IN PLACE ON THE FUSELAGE AFTER THEY ARE COVERED

**FIG 6** WING CONSTRUCTION

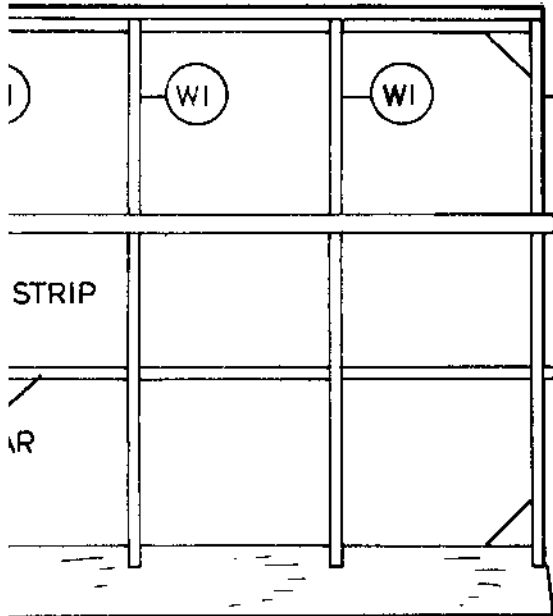
CUT NOTCHES IN TRAILING EDGE SHOWN ON PLAN, AND PIN THE 1/16 SQ LOWER SPAR IN PLACE OVER WING DRAWING.



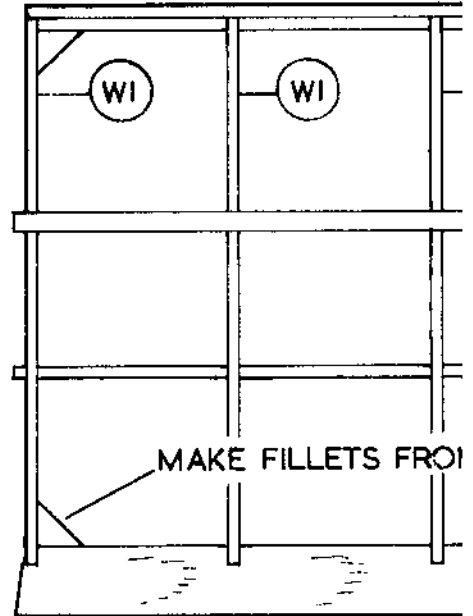
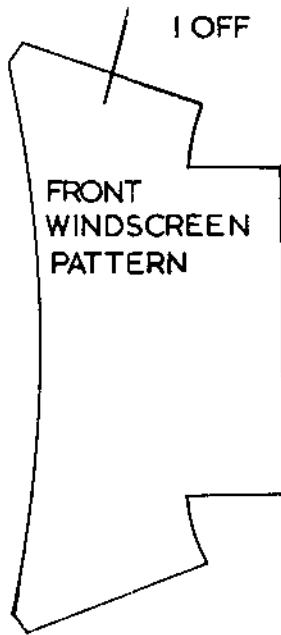
TILT END RIBS AS SHEWN



MAKE FROM CELLULOID

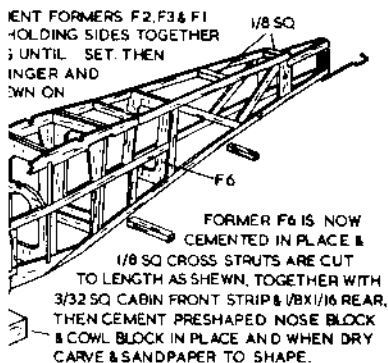


FRONT  
WINDSCREEN  
PATTERN

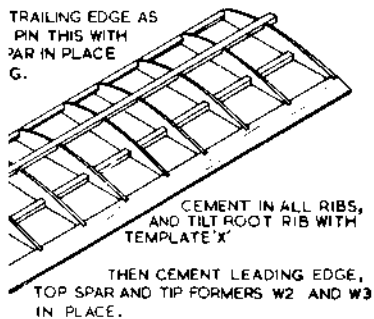


32 TRAILING EDGE

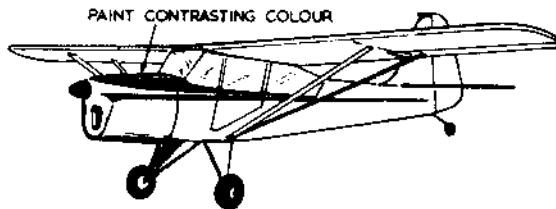
T/E.



**WING CONSTRUCTION**



**COMPLETED MODEL**



**INTRODUCTION**

This Model is one of the FROG DE-LUXE SERIES which consists of a range of Models representing popular full-size aircraft.

To ensure a satisfactory job, carefully study the plan and check the parts with it before cementing them together. As with other Frog Models most of the parts are supplied ready cut to shape for easy assembly. 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 sharp balsa knife or single edge razor blade and a few pins.

**BUILDING**

Build up the fuselage sides and wings over the

plan, following the sequence of construction in the sketches; lay a sheet of greaseproof paper over the plan to prevent the cement sticking to the plan; well-cement the main undercarriage against bulkhead F4 then cement pieces against the sides to secure it. Cover the paper the balsa wood structure before covering with tissue. The wings and tailplane are cemented to the fuselage after covering.

**COVERING**

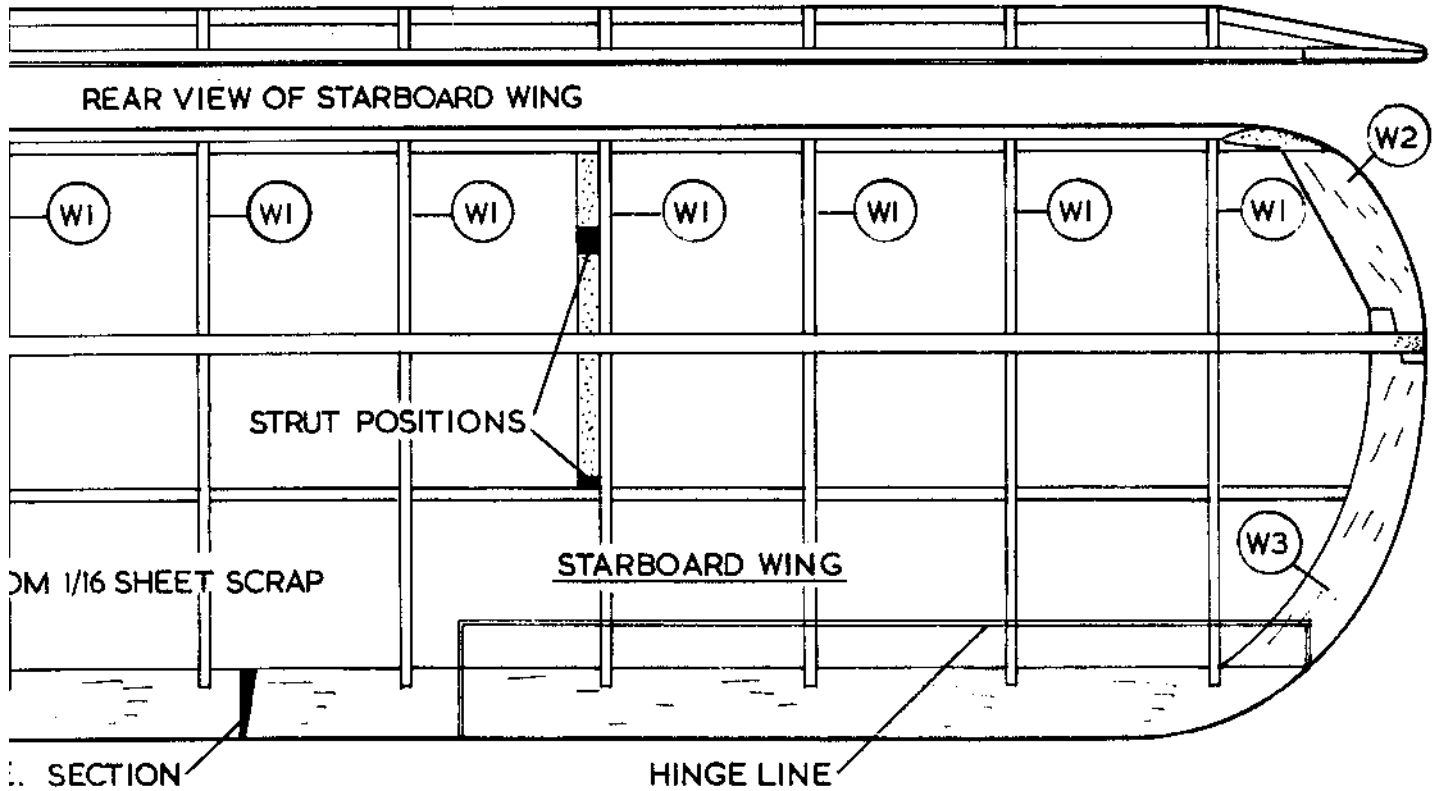
Cover the Model with the tissue using office paste or clear dope as an adhesive.

Cut the tissue to approximate shape with a 3/8 in. margin all round. Apply adhesive to the side edges of wing then lay the tissue over and pull gently all round. Do not attempt to get it drumtight, but aim at getting an even cover with no deep wrinkles. When dry trim off the top side.

Cover fin and tailplane, applying adhesive to the edges and pulling tissue over and trim off excess. Before applying clear dope, wet the fuselage and wing with water, then lay the wing on a flat board to prevent warping. When thoroughly dry apply a thin coat of shrinking dope to each part, pinning it down and fin down on to a flat board covered



POSITION OF 3/16X1/16 STRIP ON FORMERS F4, F5, F6.



struction given  
roof paper over  
ing. Bend the  
apes shown on  
r-carriage legs  
ce F4A over it  
Carefully sand-  
efore covering  
ane should be  
ing.

supplied using  
sive.  
hape leaving a  
sive to under-  
ue over it and  
empt to get it  
in surface, with  
off excess and

g adhesive to  
trimming off  
a, lightly spray  
then pin down  
warping.

coat of clear  
wing, tailplane  
ed with grease-

proof paper to prevent sticking. When dry give fuselage two more thin coats of dope and the wing one. (If Model is to be used for flying do not use colour dope unless sprayed on thinly.)

**SOLDERING**

Clean parts to be soldered with glasspaper, then apply flux to parts to be joined. Heat up soldering iron and clean tip with file; dip in small container of flux and apply solder on to end of iron, then apply iron to joint until solder flows round it. When set wipe off excess flux to prevent rusting.

**MOTOR**

This is composed of two 9 in. elastic bands which are supplied. Lubricate them with Frog Rubber Lubricant or Castor Oil, and insert them into the fuselage with the help of a length of wire or thread. Bend a hook at one end of the wire and insert it into the front end of the fuselage. (If a thread is being used, tie a weight to one end and drop it through.) 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 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 very calm day for your first test.

The model should balance level when held on the fingertips at the main spar position on wing. Small pieces of plasticine should be added to nose or tail until the balance is correct.

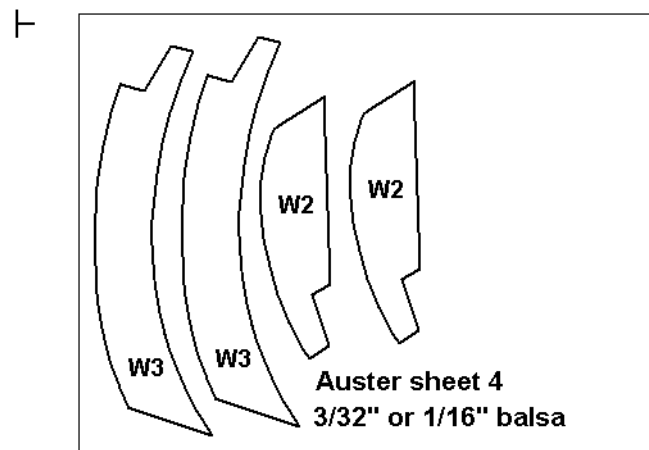
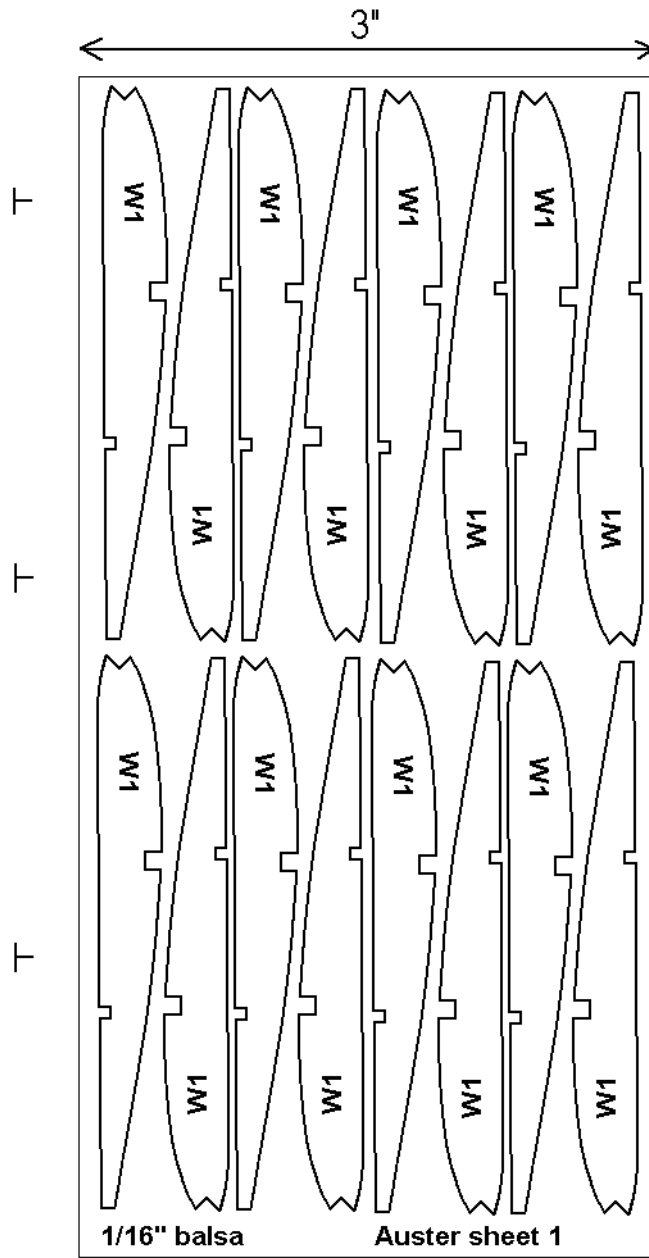
Test glide the model to check the balance. Hand launch it in a slight downward direction. If it dives, add weight to the rear of fuselage, and if it climbs sharply and drops back on tail (this is called stalling) add weight to the nose.

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. Increase the turns on the motor gradually, up to a maximum of approximately 300; if the motor is not lubricated, the turns must be limited to 150. An unlubricated motor will wear and break very quickly. Stretching the elastic while winding will enable more turns to be obtained.

If model stalls under power, cement a thin strip of balsa between top of nose plug and nose block, to cause a downward thrust of the propeller.

Produced in England by  
**INTERNATIONAL MODEL AIRCRAFT, LTD.,**  
Morden Road : Merton : London, S.W.19.





3"

