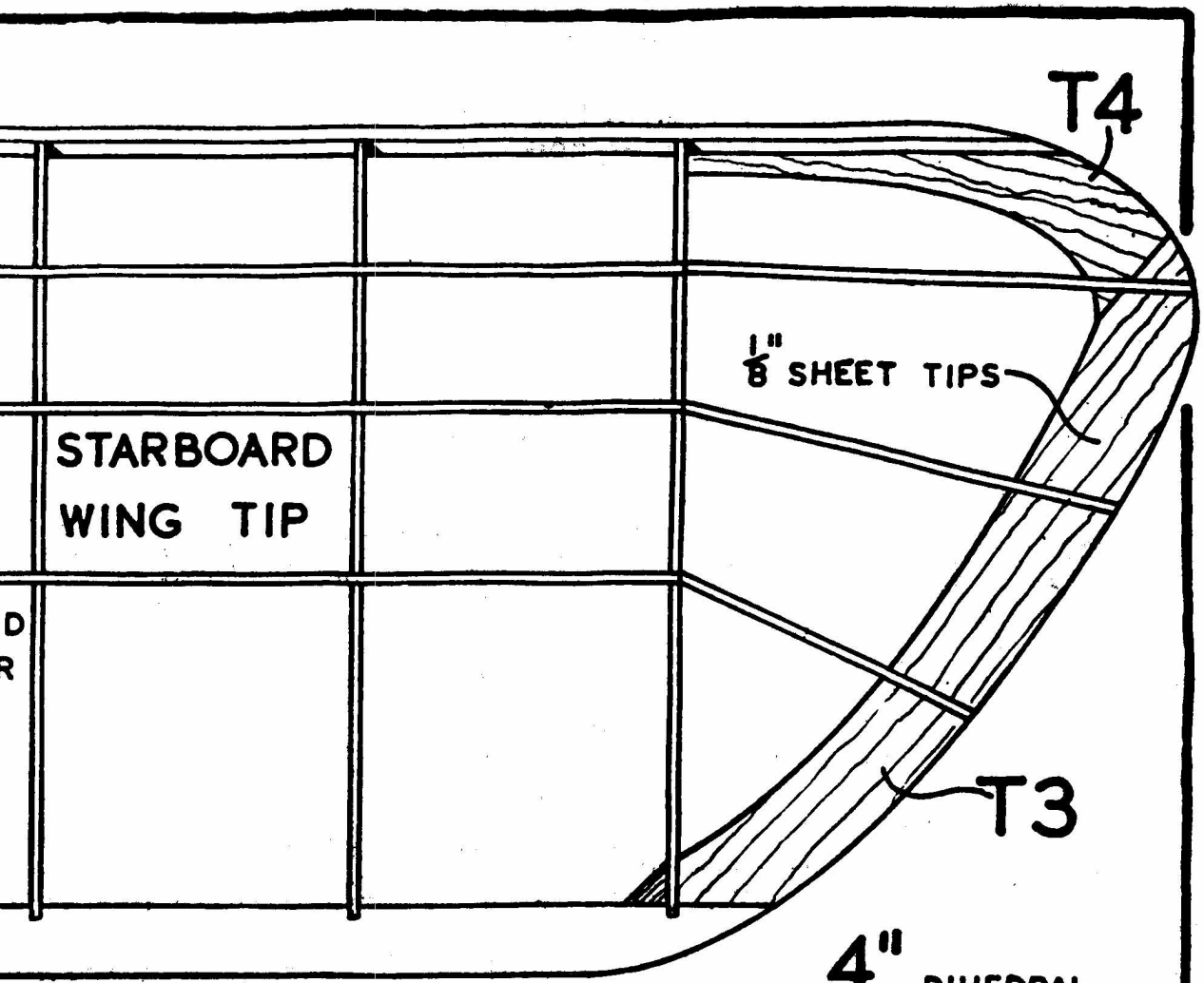
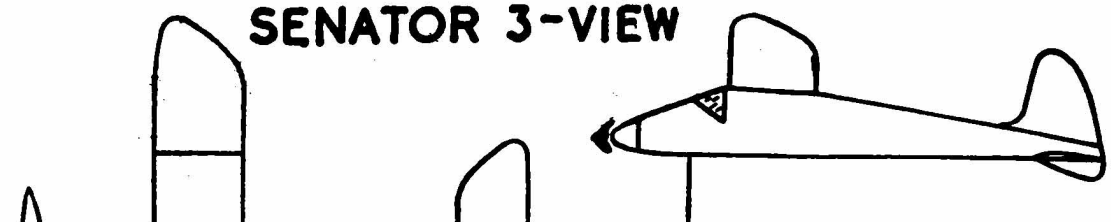
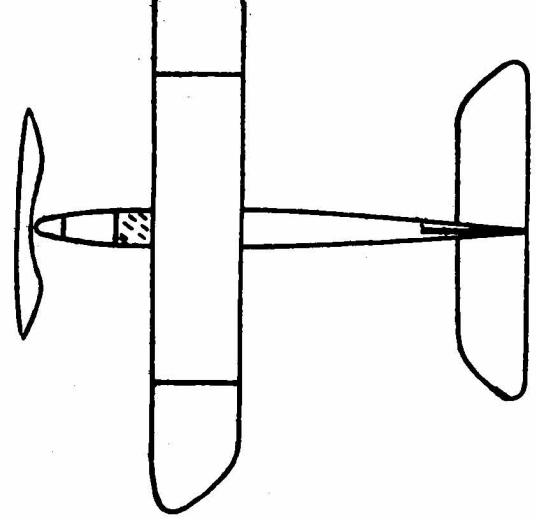
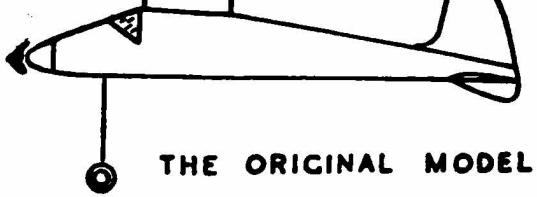


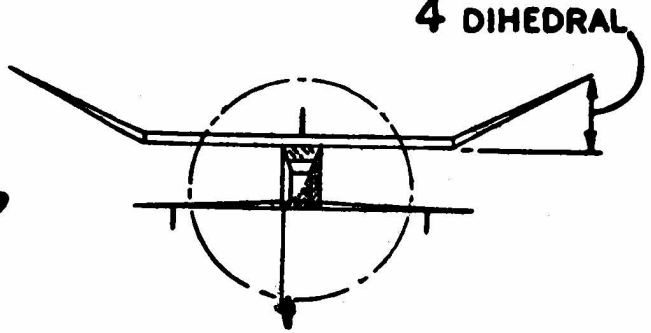
SENATOR 3-VIEW







THE ORIGINAL MODEL
WEIGHED 3.7 ozs.



"The "Senator"

30" SPAN CABIN DURATION MODEL

— MANUFACTURED BY —

KEILKRAFT KITS

BUILDING INSTRUCTIONS

● FUSELAGE

Pin down the longerons for one fuselage side by placing pins on either side of the stripwood. Cut the uprights to correct lengths and glue these accurately in place over the positions indicated. Glue piece 'B' in place at the rear end, also piece 'Y' and piece of 1/8" sheeting at the nose. When this first side is dry build a second side directly over it. Remove both sides from plan when they have set and separate them very carefully with a thin knife. Hold the extreme rear ends together with a Bulldog paper clip and insert top and bottom cross braces at the wing position, check

trailing edge in similar manner, glue the ribs in their correct positions and pull the spars up into the notches. Cement leading edge into front notches provided in ribs, then add top three spars and the gussets where shown. The Tips are constructed by locating the three bottom spars in between pins as for the Centre Section, pin down the Trailing edge, position the ribs with pins apply glue to the lower rib notches and pull the spars up into these notches. SEE NOTE REGARDING TILT IN END RIBS as this governs the amount of dihedral at the extreme tips. Add the leading edge and tip pieces, join the spars to the tips as shown. The bottom spars terminate inside the tip pieces, the top spars are

sheeting at the nose. When this first side is dry build a second side directly over it. Remove both sides from plan when they have set and separate them very carefully with a thin knife. Hold the extreme rear ends together with a Bulldog paper clip and insert top and bottom cross braces at the wing position, check for squareness and leave fuselage resting on the lower longerons until dry. Insert the cross braces at the extreme nose holding the sides in with a rubber band until set, then bind nose with thread and cement well. (see *Top View*) add the remaining cross braces top and bottom checking for squareness as you proceed. Glue 1/8" sheet flush in top and bottom of nose, glue 1/16" flush in the top at fin position. Bend U/c wire to shape, place wheel on axle and bend up the end of the wire to retain the wheel, bind wire in place where shown in Side View apply cement over thread for extra strength. Cut the sheet celluloid to shape and glue in place for the cabin. Add wing and tail fixing dowels and the gussets to strengthen them. Roughly carve nose block to shape, build plug on back face as noted, plug into nose and sandpaper to a smooth finish while on fuselage, remove and drill hole in position shown to receive propeller shaft bearing bush. Glue this bush firmly in place. Bend motor hook, thread nose block, cup washers and airscrew on the shaft and with pointed nose pliers bend the freewheel loop. Bend the freewheel latch to shape and attach to airscrew. Pin the outline of the fin to the plan, add pieces of 1/8" square, when dry sandpaper the rear edge to a taper and round off the leading edge. Glue the fin in place squarely on top of the fuselage where indicated, glue the fairing 'X' in place. Sandpaper the whole fuselage with fine sandpaper to obviate rough edges, etc.

● WING

Commencing with the Centre Section, pin down the three bottom spars by placing pins on either side of the 1/16" stripwood, position the with pins apply glue to the lower rib notches and pull the spars up into these notches. SEE NOTE REGARDING TILT IN END RIBS as this governs the amount of dihedral at the extreme tips. Add the leading edge and tip pieces, join the spars to the tips as shown. The bottom spars terminate inside the tip pieces, the top spars are carried over the tip as can be seen in the sectional view through tip. When the three wing sections have set glue the tips to the centre section and leave to dry with the tips propped up 4". Finally sand paper the leading and trailing edges to shapes shown and finish smooth all over.

● TAILPLANE

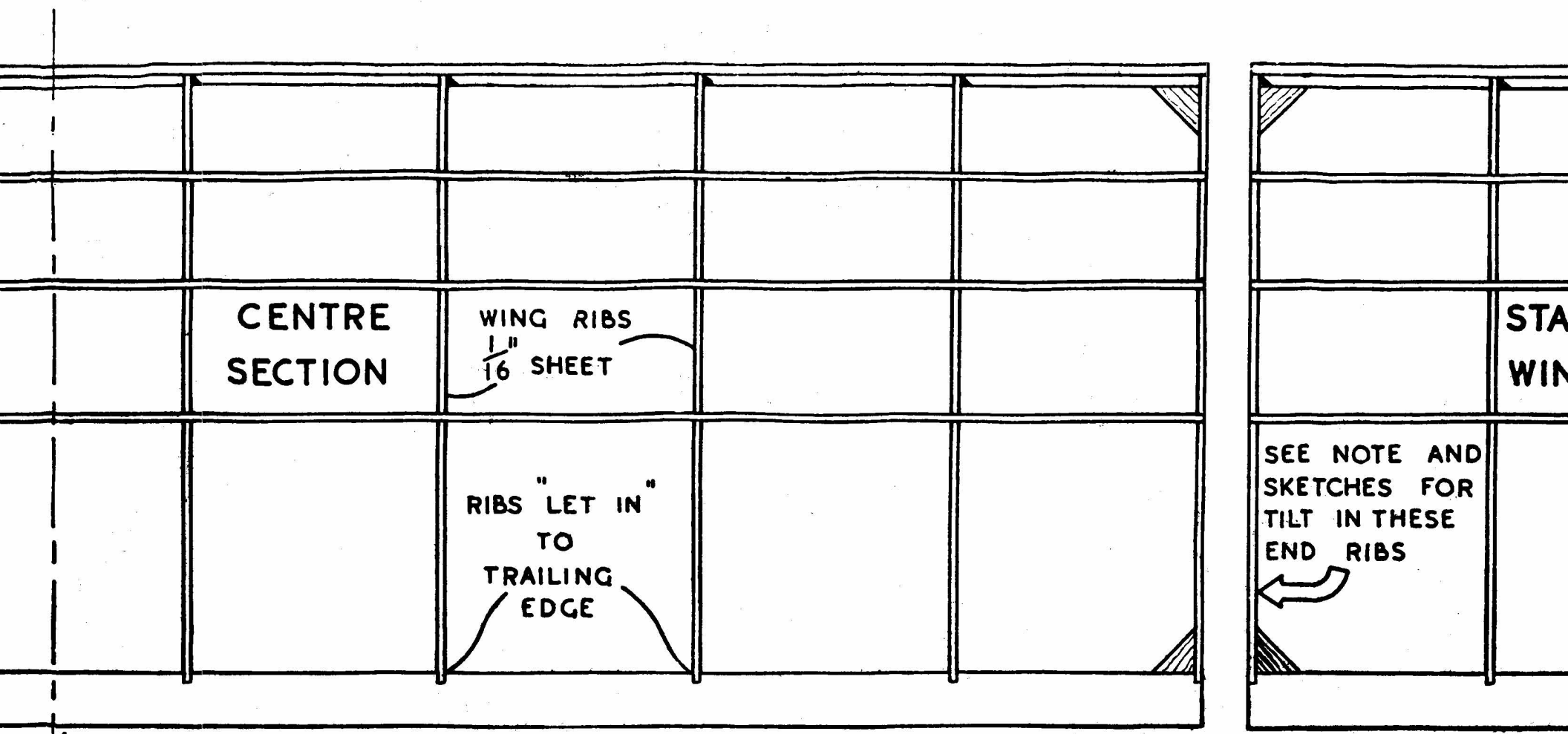
Build the tailplane in similar fashion to the wing, cover the centre portion with 1/32" sheet, and glue a piece of 1/8" square exactly where indicated on the top surface. The sub-fins are added after covering with tissue. Round off the leading edge and tips, taper the trailing edge down and fine sandpaper all over.

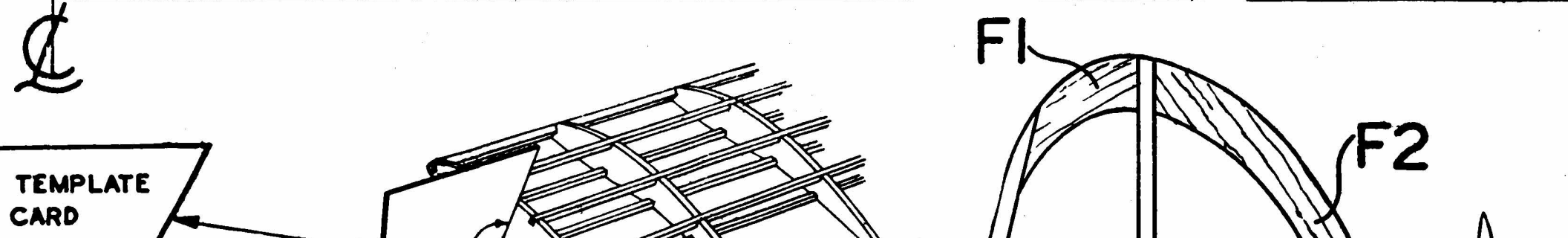
● COVERING

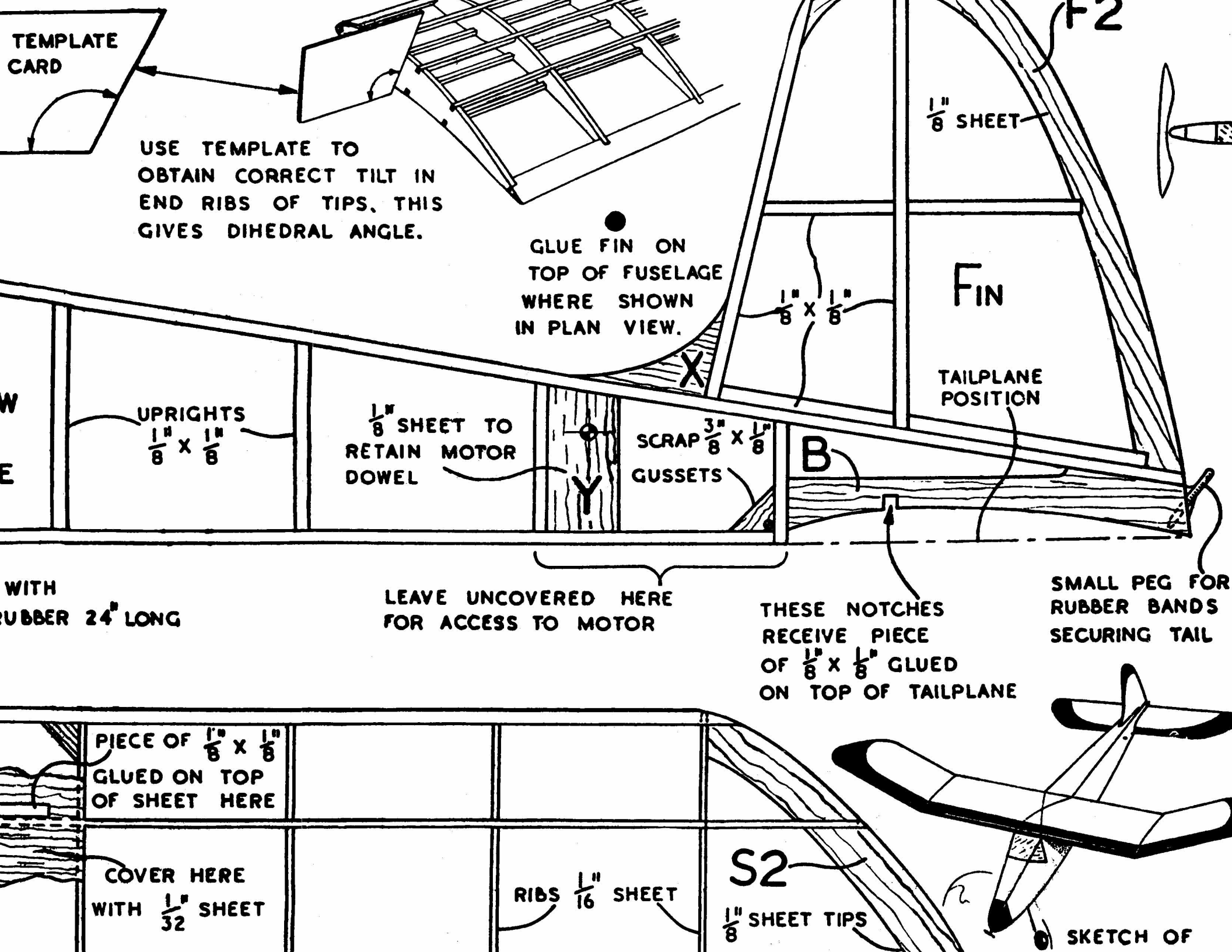
When covering the model use tissue paste or tissue cement for an adhesive. Cover the fuselage sides then top and bottom applying paste to the actual outline only. The wing is covered in six pieces, three above and three below. It is important that the tissue should be made to adhere to the lower spars of the wing also to the under side curve of the ribs which is known as the " undercamber." Use two pieces of tissue for the top of the tailplane and one for the underside. While covering any part of the model endeavour to eliminate as many wrinkles as possible. When all the parts are covered spray lightly with water and allow to dry, this tightens the covering prior to the application of dope. Apply two coats of dope to the fuselage, two thin coats to the wing and one coat to the fin and tailplane.

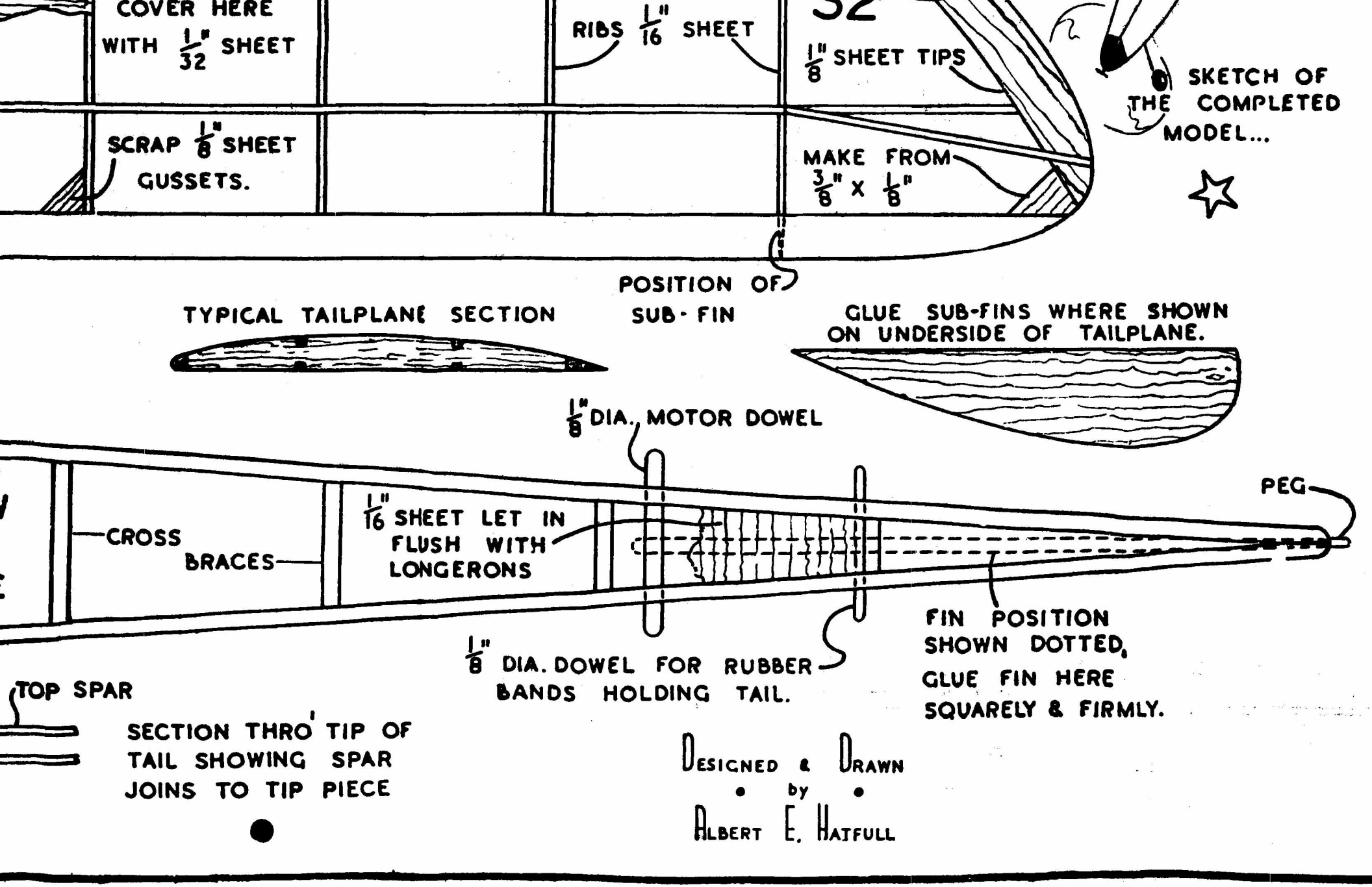
FLYING INSTRUCTIONS

Assemble the model and insert the specified rubber motor in to the fuselage. Choose a comparatively calm day for test flights and select a field with fairly long grass. Your particular model may need balancing and this is executed by adding ordinary plasticine to the inside of the nose block or inside the extreme rear end of the fuselage i.e. directly over the tail position. The model should be made to balance level when held on the fingertips at the third spar back from the leading edge. Now glide the model into the wind, launch it firmly and parallel to the ground. If it dives or noses down place a thin 1/32" to 1/16" strip of balsa under the leading edge of the tail, If it stalls, i.e. noses up and wavers unsteadily, add a small amount of plasticine inside the nose block (or remove any previously placed in the tail). Continue test gliding until a long floating glide is obtained. Give the motor 100 to 200 turns preferably "stretch" wound, place a strip of 1/16" down the left hand side of the nose block, then launch. The strip of 1/16" packing is to induce side thrust and should impart a right handed circling climb to the model. A small celluloid "trim tab" 1½" x ½" glued down the trailing edge of the fin may be used to obtain a tighter turn under power followed by a larger gliding circle.


CENTRE SECTION
WING RIBS
1/16" SHEET
RIBS "LET IN" TO TRAILING EDGE
SEE NOTE AND SKETCHES FOR TILT IN THESE END RIBS


TEMPLATE CARD
F1
F2


TEMPLATE CARD
USE TEMPLATE TO OBTAIN CORRECT TILT IN END RIBS OF TIPS. THIS GIVES DIHEDRAL ANGLE.
GLUE FIN ON TOP OF FUSELAGE WHERE SHOWN IN PLAN VIEW.
F2
1" 8 SHEET
FIN
1" 8 X 1" 8
TAILPLANE POSITION
UPRIGHTS 1" 8 X 1" 8
1" 8 SHEET TO RETAIN MOTOR DOWEL
SCRAP 3" 8 X 1" 8 GUSSETS
B
X
Y
WITH
UBBER 24" LONG
LEAVE UNCOVERED HERE FOR ACCESS TO MOTOR
THESE NOTCHES RECEIVE PIECE OF 1" 8 X 1" 8 GLUED ON TOP OF TAILPLANE
SMALL PEG FOR RUBBER BANDS SECURING TAIL
PIECE OF 1" 8 X 1" 8 GLUED ON TOP OF SHEET HERE
COVER HERE WITH 1" 32 SHEET
RIBS 1" 16 SHEET
S2
1" 8 SHEET TIPS
SKETCH OF



Designed & Drawn
by
Albert E. Hatfull

IP

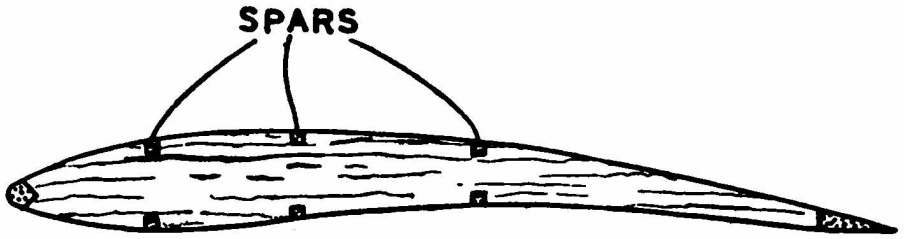
TOM
AR

SCRAP $\frac{1}{8}$" SHEET GUSSETS

LEADING EDGE $\frac{1}{8}$" X $\frac{1}{8}$"

$\frac{1}{16}$" X $\frac{1}{16}$" SPARS TOP & BOTTOM

TRAILING EDGE $\frac{3}{8}$" X $\frac{1}{8}$"



CUT THIS TEMPL
FROM CARD

TYPICAL WING SECTION. SAND LEADING AND TRAILING EDGES TO SHAPES SHOWN

CUT THIS TEMPL
FROM CARD

WING POSITION

1/8" SHEET GUSSETS TO RETAIN WING DOWELS

CELLULOID

LONGERONS 1/8" X 1/8"

SIDE VIEW OF FUSELAGE

POWER YOUR MODEL WITH 6 STRANDS OF 1/4" X 1/30" RUBBER

FULL SIZE LAYOUT OF UNDERCARRIAGE WIRE BEND TO THIS PATTERN FROM 18 S.W.G. WIRE

SI

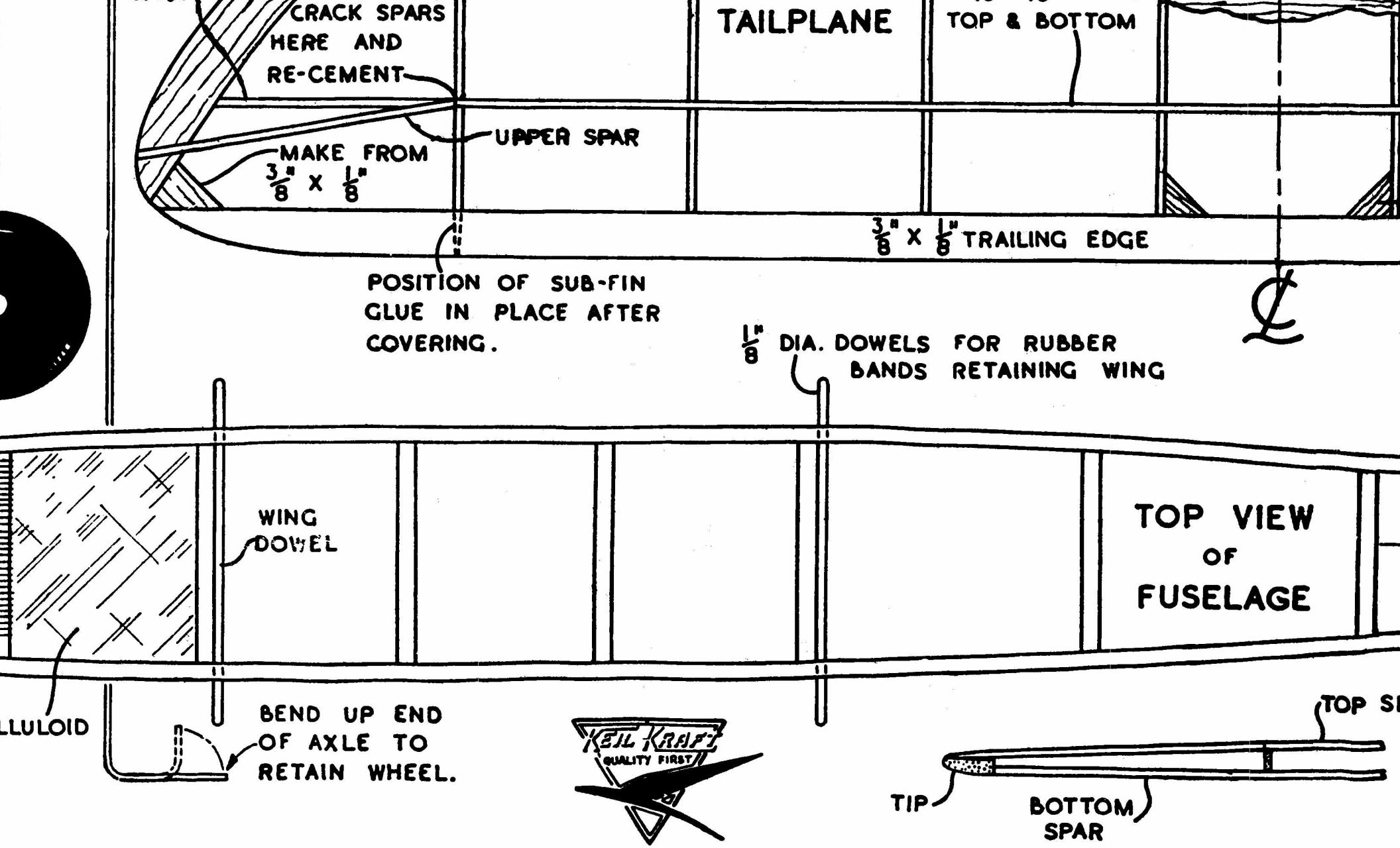
LOWER SPAR

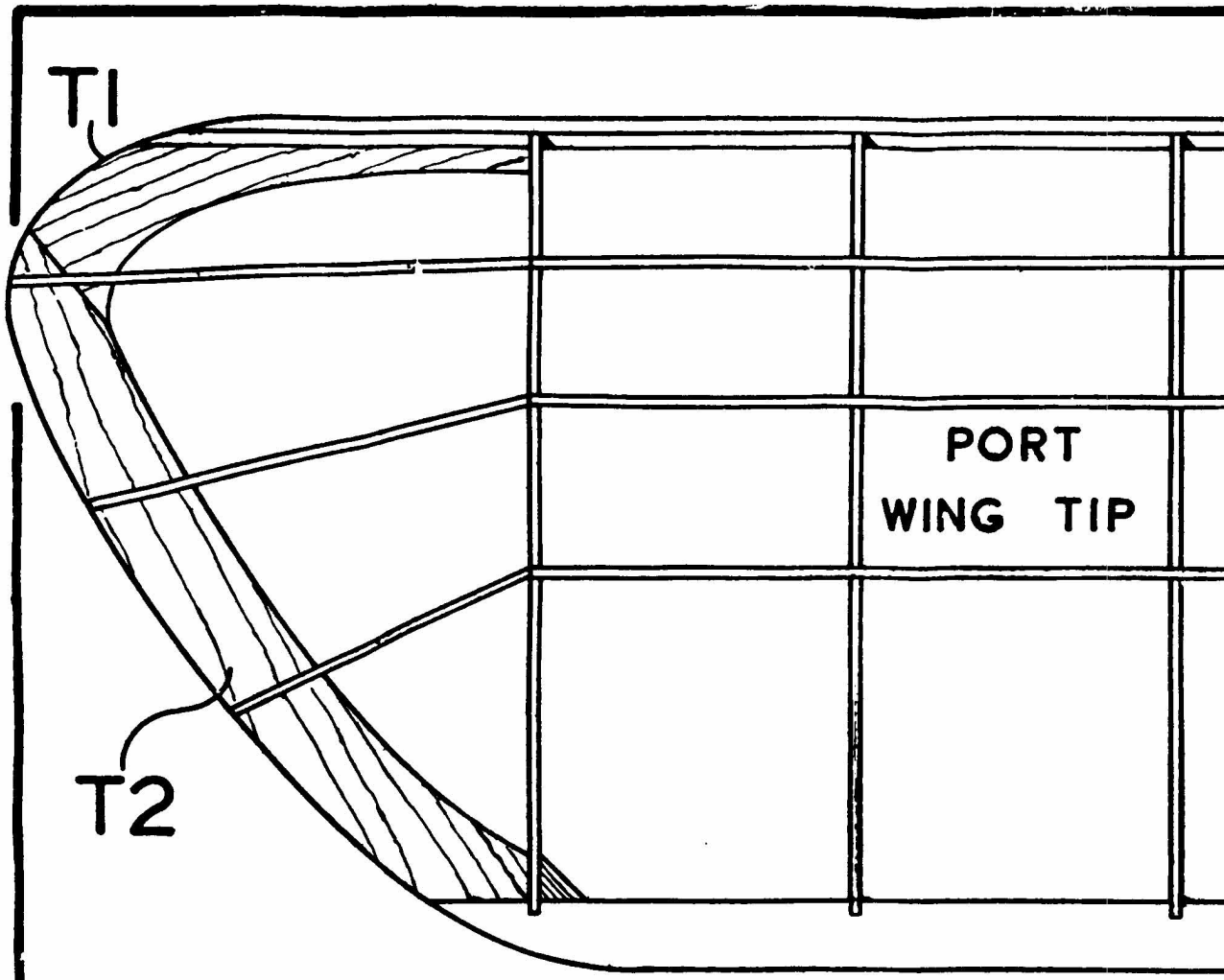
CRACK SPARS HERE AND RE-CEMENT

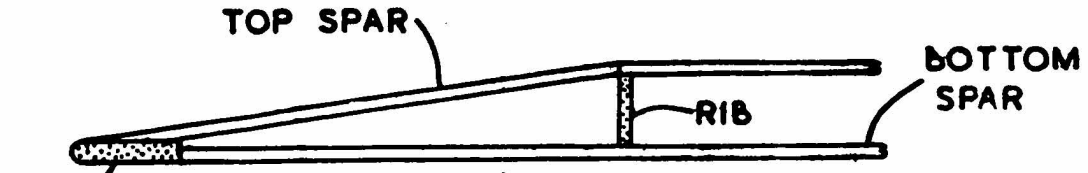
TAILPLANE

LEADING EDGE 1/8" X 1/8"

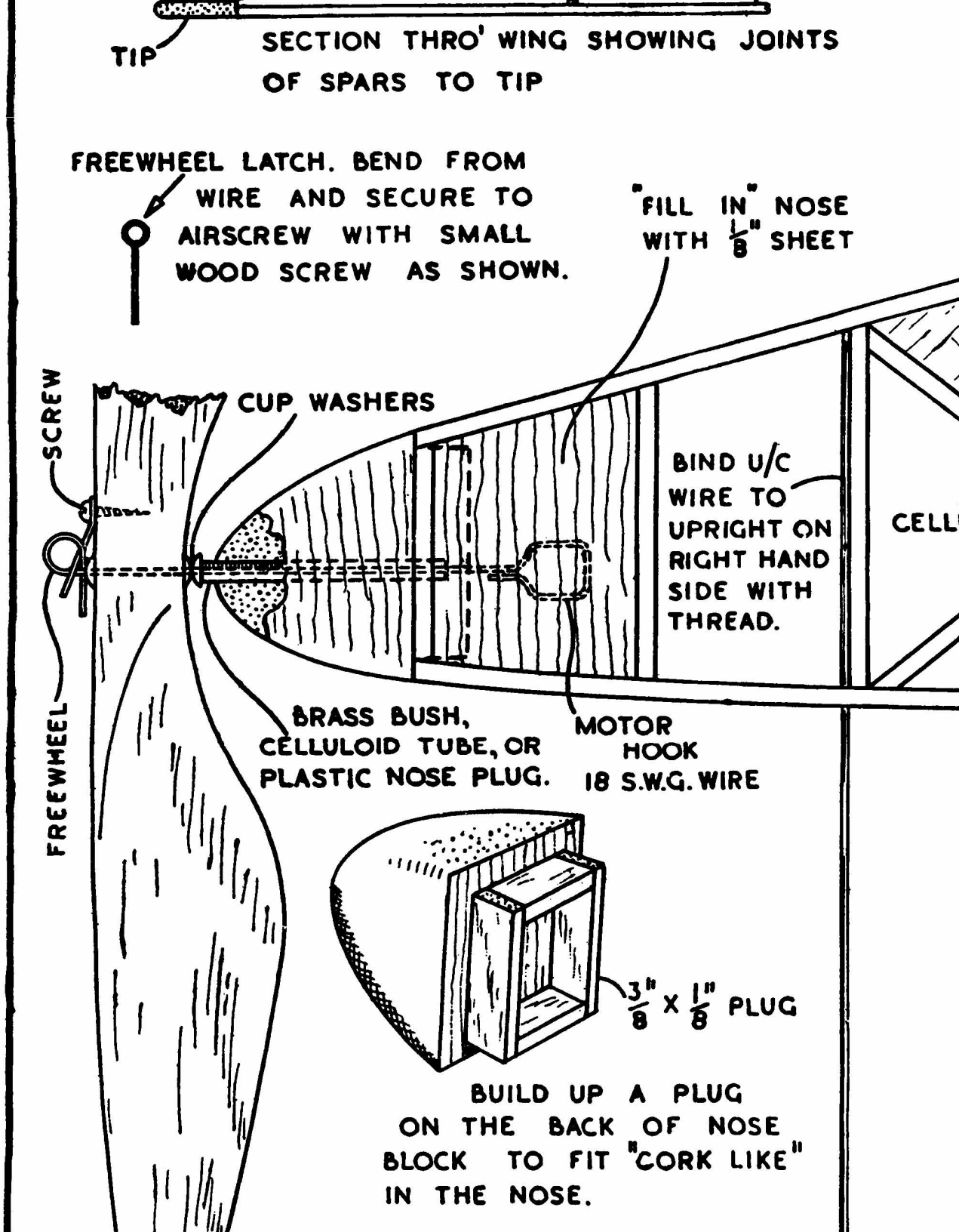
1/16" X 1/16" SPARS TOP & BOTTOM

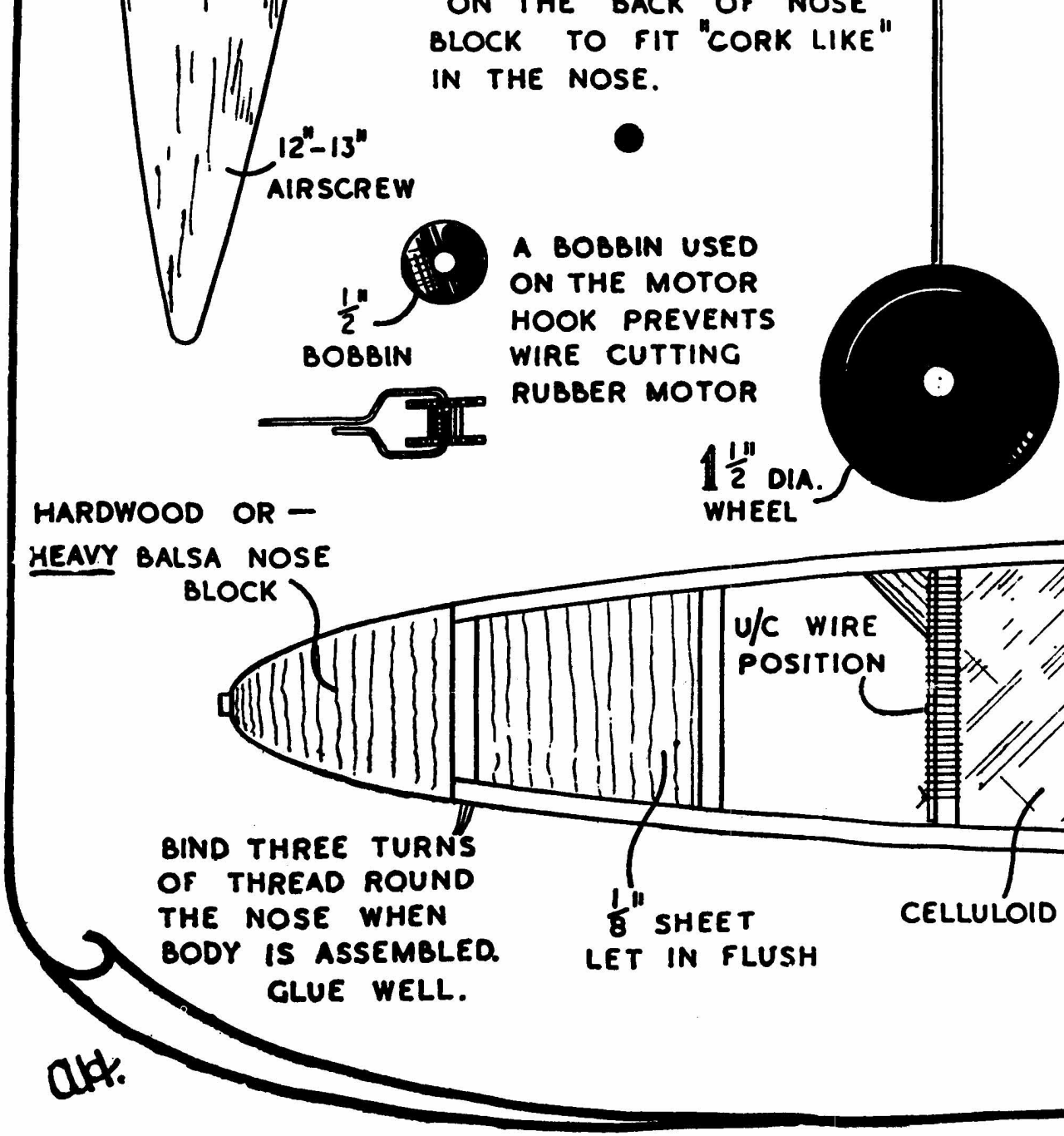

CRACK SPARS HERE AND RE-CEMENT
TAILPLANE
TOP & BOTTOM
UPPER SPAR
MAKE FROM 3/8" X 1/8"
3/8" X 1/8" TRAILING EDGE
POSITION OF SUB-FIN GLUE IN PLACE AFTER COVERING.
℄
1/8" DIA. DOWELS FOR RUBBER BANDS RETAINING WING
WING DOWEL
TOP VIEW OF FUSELAGE
LLULOID
BEND UP END OF AXLE TO RETAIN WHEEL.
KEIL KRAFT QUALITY FIRST
TOP SI
TIP
BOTTOM SPAR





SECTION THRO' WING SHOWING JOINTS
OF SPARS TO TIP


TIP
SECTION THRO' WING SHOWING JOINTS OF SPARS TO TIP
FREEWHEEL LATCH. BEND FROM WIRE AND SECURE TO AIRSCREW WITH SMALL WOOD SCREW AS SHOWN.
"FILL IN" NOSE WITH 1/8" SHEET
SCREW
CUP WASHERS
BIND U/C WIRE TO UPRIGHT ON RIGHT HAND SIDE WITH THREAD.
FREEWHEEL
BRASS BUSH, CELLULOID TUBE, OR PLASTIC NOSE PLUG.
MOTOR HOOK 18 S.W.G. WIRE
3/8" X 1/8" PLUG
BUILD UP A PLUG ON THE BACK OF NOSE BLOCK TO FIT "CORK LIKE" IN THE NOSE.


ON THE BACK OF NOSE BLOCK TO FIT "CORK LIKE" IN THE NOSE.
12"-13" AIRSCREW
1/2" BOBBIN
A BOBBIN USED ON THE MOTOR HOOK PREVENTS WIRE CUTTING RUBBER MOTOR
1 1/2" DIA. WHEEL
HARDWOOD OR — HEAVY BALSA NOSE BLOCK
U/C WIRE POSITION
BIND THREE TURNS OF THREAD ROUND THE NOSE WHEN BODY IS ASSEMBLED. GLUE WELL.
1/8" SHEET LET IN FLUSH
CELLULOID