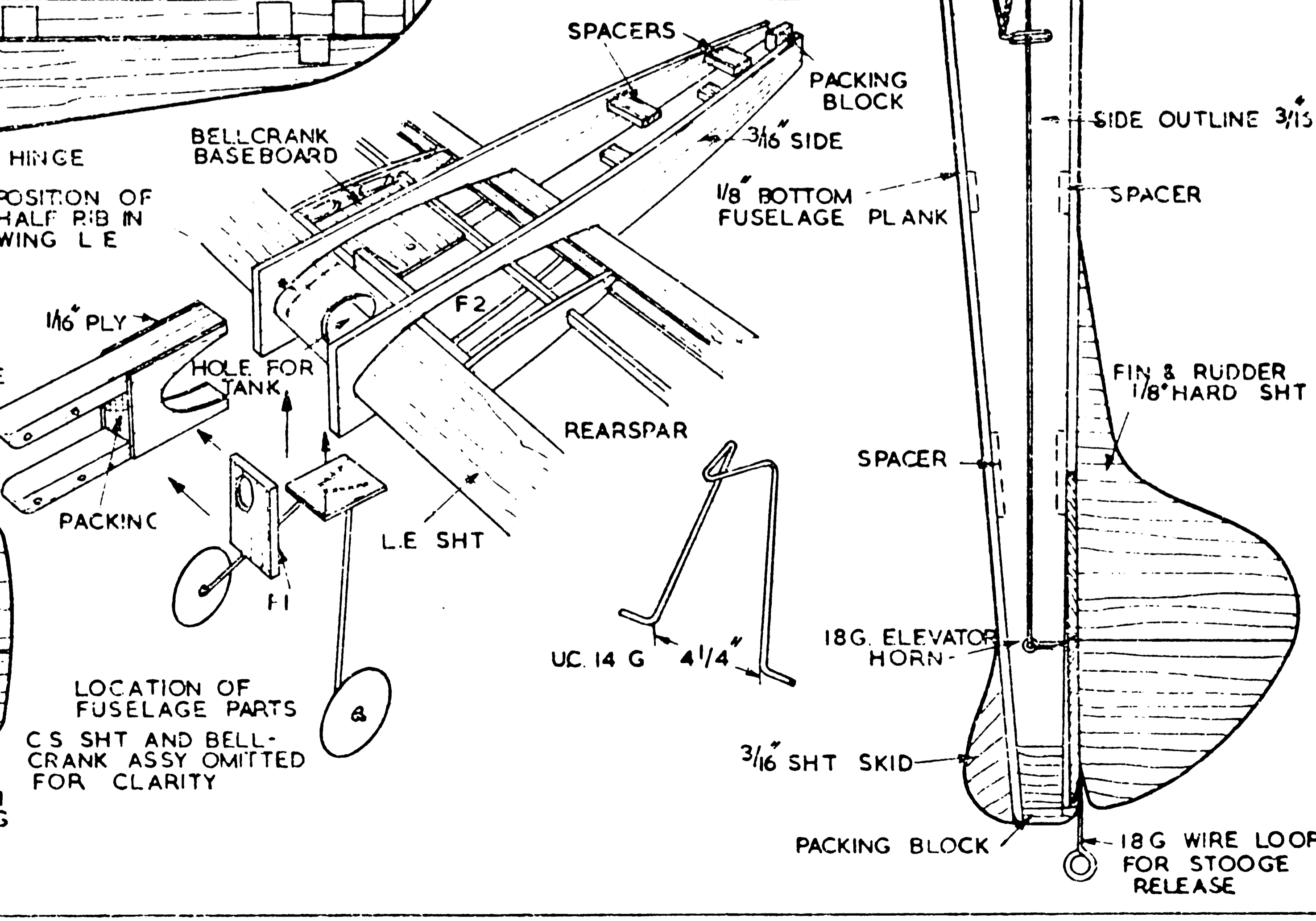
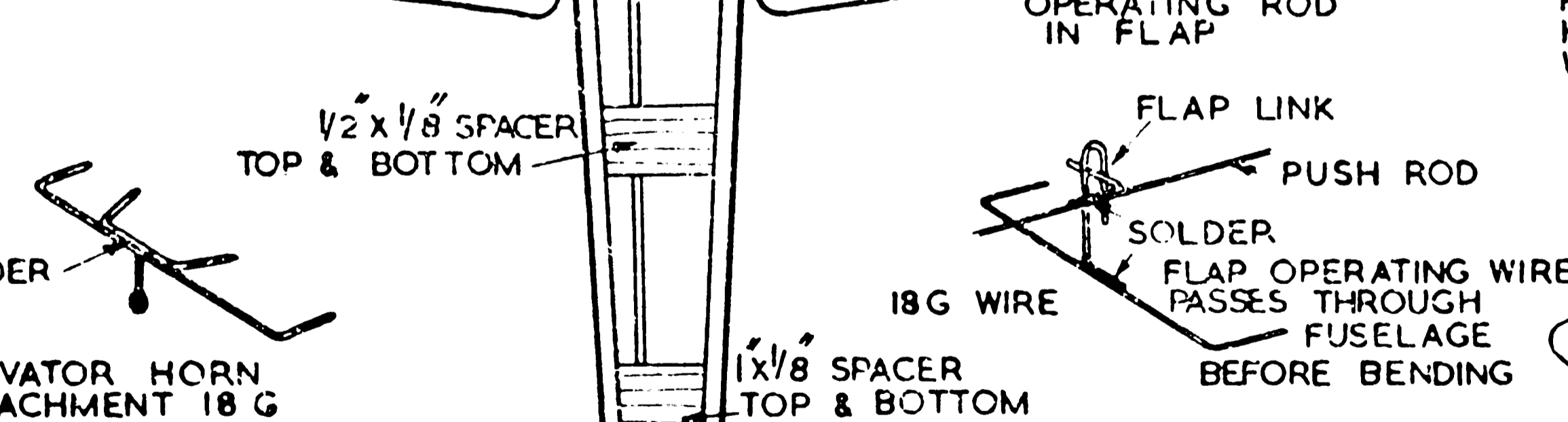
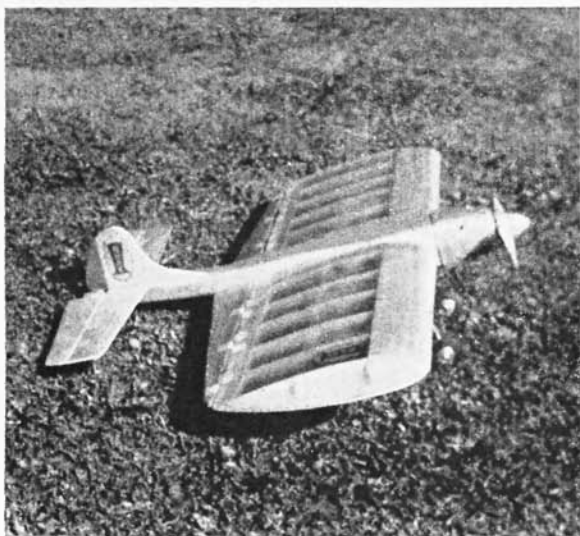


- ORDER OF ASSEMBLY**
- 1 ATTACH F2 TO COMPLETED WING CUT HOLE FOR TANK ACCESS. MOUNT BELLCRANK ASSY GLUE BASEBOARD IN POSITION SHEET WING C S
 - 2 GLUE ENGINE BEARERS IN POSITION
 - 3 CEMENT F1 AGAINST L.E. AND BEARERS
 - 4 SLIDE FUSELAGE SIDES IN PLACE FROM WING TIPS & CEMENT JOIN FUSELAGE AT REAR
 - 5 CEMENT U.C. ASSEMBLY IN POSITION
 - 6 ADD FUSELAGE SPACERS



REVOLUTION
 M A
 307 M KELLY 4/6
 SPAN 27" LENGTH 21"
 FOR 2-3.5CC. ENGINES
 © MODEL AIRCRAFT 1959
 19-20 NOEL ST LONDON W1



REVOLUTION was designed to see what performance could be achieved with a 3.5 c.c. stunt model using considerably less than usual wing area, thus giving more compact overall dimensions.

The c.g. position is fairly far back (under no circumstances should it be more than $\frac{1}{4}$ in. aft of the mainspars) in order to help the model turn square corners, and as this will obviously give reduced line tension, the engine has 4 deg. out-thrust, while the fin and rudder are offset and the model flies in a clockwise circle (this gives an increase in line tension due to slipstream effects). Much of the wing and tailplane area is in the slipstream, which enables the model to use higher angles of attack without stalling, or mushing as it is usually called.

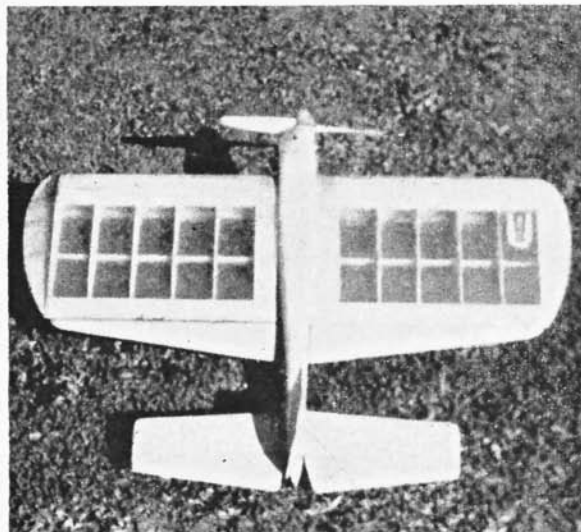
Revolution is largely experimental and as such is not primarily intended for competition flying or as a "first" stunt model as it is difficult to fly smoothly, being very sensitive and prone to pitch up when excessive control movements are used. However, it will, I think, prove good fun for the experienced stunt flier who will get used to the sensitivity and find the performance exhilarating.

I had done hardly any stunt flying for five years when

REVOLUTION

An experimental
stunt model that
handles like a
thoroughbred!

DESIGNED BY M. KELLY



I first flew it and the only crashes I had were due to engine cuts in the overhead position. Should this happen while *you* are flying try and leave the lines slack as the model will usually glide down satisfactorily by itself.

The model is very robust if built according to the plan—the original is still in first class flying order, even though it has suffered five hard crashes to date. Usual damage—torn wingtip tissue—occasionally fin or tailplane need re-cementing.

Building instructions

First study the plan thoroughly, especially the fuselage assembly as this is unorthodox, then cut out all the parts making sure that the grain runs in the direction shown on the plan.

Assemble the wing first and remember to pre-cement all joints and to use *hard* balsa for the entire model except where other woods are specified. Mark the rib position on the leading edge and spars—note that the tip and two centre section ribs, also the half rib behind engine bearers in the leading edge, are all of $\frac{1}{8}$ in. sheet.

Mount the ribs on the rear spar and cement, then fix the leading edge in position followed by the upper and lower mainspars of hard $\frac{3}{16}$ in. sq. balsa.

Now fit the $\frac{1}{16}$ in. sheet trailing edge, and when the cement is dry, sheet in the leading edge and fit the tips and gussets as shown. Insert the lead out tubes in the starboard wing tip and gusset securely. Fit the weight in the port wing tip and sand the complete assembly.

Fuselage—wing assembly

Cement former F2 in position behind the main spars, make up the bellcrank, etc., and bolt the complete assembly, including the lead out wires, securely to the baseboard. Check for free movement and cement the baseboard—with assembly—into position between F2, the rear spar and rib. Finally, sheet cover the wing centre section.

Make up the engine bearer assembly (with the bearers slightly longer than required), file to fit perfectly on to

the wing leading edge, then cement in position. (When the model is completed and doped slide the engine between the bearers and adjust until the c.g. is as shown, then drill the mounting holes.) Cut hole in leading edge sheet for insertion of balloon tank, cement F1 in position against the leading edge, slide the fuselage sides on from the wing tips and cement in position. At the same time join the fuselage to the packing block at the rear and cement well.

Cement the completed undercarriage assembly in position between F1 and F2, and finally cement the fuselage spacers in position.

Cut holes in the fuselage sides immediately behind the wing trailing edge and slide the flap operating wire in place. Solder the flap operating horn to it, and then solder the flap link to the push rod; check that the bellcrank is in the neutral position. The ends of the flap operating wire can now be bent at right angles to the wing.

Make up the tailplane and elevator and fit the horn in place. Connect the push rod to the horn and secure with a dab of solder so that the push rod cannot fall out. Cement the tailplane in position checking for neutral setting of the elevator—it is important at this stage to ensure that the flap and elevator are correctly synchronised to give a 40 deg. each way movement of the flap to a 60 deg. each way movement of the elevator.

The tail skid can now be fitted and the upper and lower fuselage halves sheeted in. Round off the edges with sandpaper and fit the stooze loop at the tail. Cement the fin and rudder in position, and cover the wings, fuselage and tailplane with lightweight tissue.

Dope the fuselage with a mixture of talcum powder and dope to seal the paper and sand smooth with flour paper. Apply three coats of clear dope to complete the model and finally a coat of colour trim to the fuselage only.

Fuelproof the balloon box by pouring clear dope through the hole in F1 and rotating the model several times, pouring out the residue. Bend up the loops in the end of lead out wires. Fit the engine and make the cowl—try beating it from aluminium over the end of a broom handle—it's not very difficult.

A good balloon tank is simple to make, the only thing to remember is not to leave sharp edges on the notched end of the tube, and not to bind the balloon too tightly in place or the fuel flow will be restricted.

The tank can be fitted into its box in the leading edge (between F2, the leading edge sheet and the half rib and centre section rib) either by pushing it through the hole in F1 with a piece of well rounded off and sanded dowel, or by cutting a hatch in the top of the fuselage between F1 and F2.

Balloon tanks operate very well once the art of filling them and removing any air bubbles has been mastered, but a new balloon should be used for each day's flying. Puncture of a tank can be diagnosed by fuel pouring from the drain holes in the tank box.

Use full up elevator for your first take-off if you are flying over grass because of the small wheel size. Immediately *Revolution* is airborne centralise the controls and let the model climb to a safe height before levelling off. Note that the climb may well be vertical! but the model will, even so, hold tight on the lines.

FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT, 19-20, NOEL STREET, LONDON, W.1., 4s. 6d., POST FREE

