

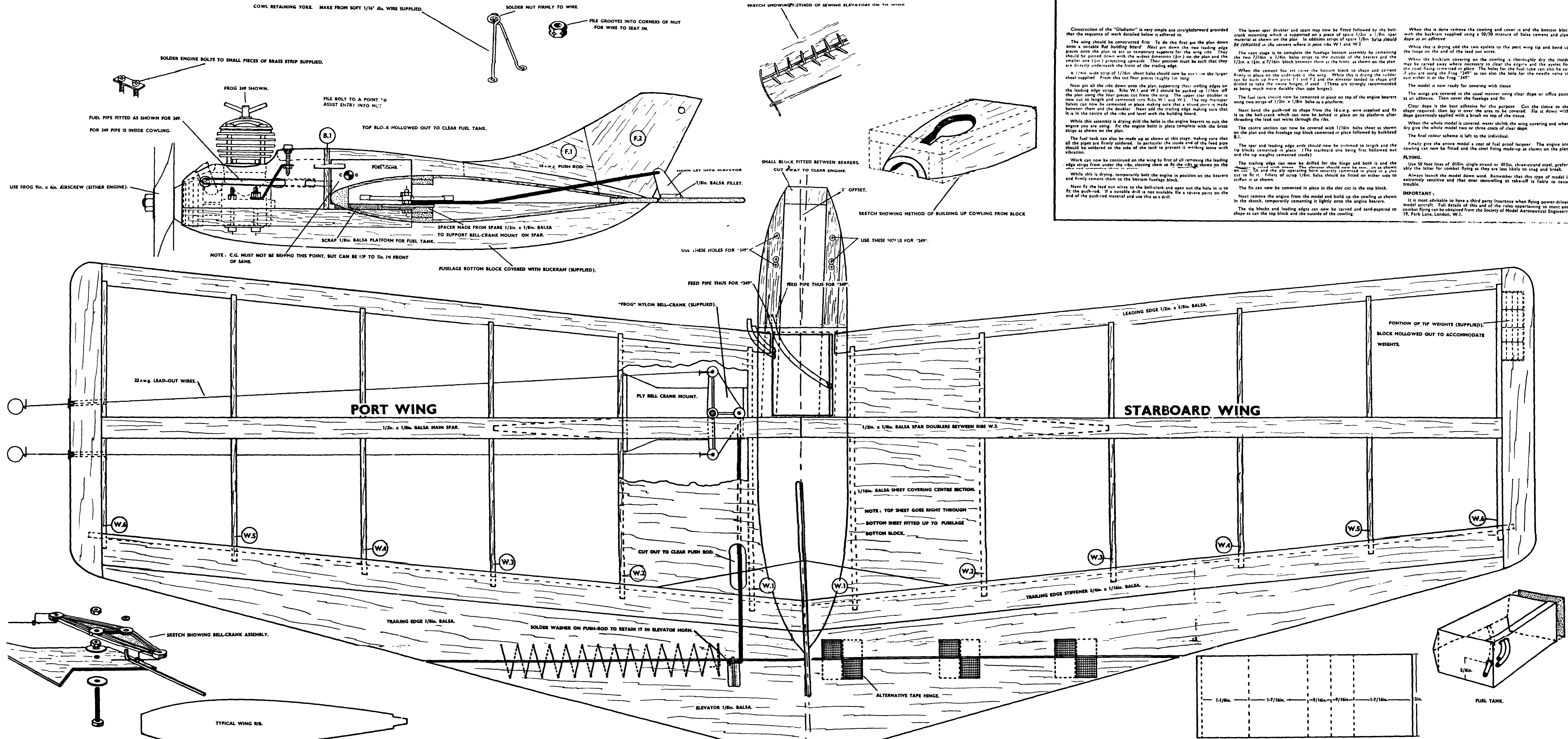
Full size drawing of the

FROG "GLADIATOR"

A highly manoeuvrable
combat or stunt model for
2.5cc to 3.5cc engines

SPECIFICATION:	
SPAN	36in.
LENGTH	14 1/2in.
WEIGHT (with Frog "249")	17oz.
WING AREA	317 sq. in.

CAT. No. 693KT.



BUILDING AND FLYING INSTRUCTIONS.

Construction of the "Gladiator" is very simple and straightforward provided that the sequence of work detailed below is adhered to.

The wing should be constructed first. To do this first pin the plan down onto a suitable *map building board*. Next pin down the two leading edge pieces onto the plan to act as temporary supports for the wing ribs. They should be pinned down with the widest dimension (2in.) on the plan and the smaller one (1in.) projecting upwards. Their position must be such that they are directly underneath the front of the trailing edge.

A 1/4in wide strip of 1/16in sheet balsa should now be cut 1in from the larger sheet supplied. From this cut four pieces roughly 1in long.

Now pin all the ribs down onto the plan, supporting their trailing edges on the leading edge strips. Ribs W.1 and W.2 should be packed up 1/16in off the plan using the four pieces cut from the strip. The upper spar doubler is now cut to length and cemented into Ribs W.1 and W.2. The top main spar halves can now be cemented in place making sure that a snug joint is made between them and the doubler. Next add the trailing edge making sure that it is in the centre of the ribs and level with the building board.

While this assembly is drying drill the holes in the engine bearers to suit the engine you are using. Fit the engine bolts in place complete with the brass strips as shown on the plan.

The fuel tank can also be made up as shown at this stage, making sure that all the pipes are firmly soldered. In particular the inside end of the feed pipe should be soldered to the side of the tank to prevent it working loose with vibration.

Work can now be continued on the wing by first of all removing the leading edge strips from under the ribs, sliding them up to fit the ribs as shown on the plan.

While this is drying, temporarily bolt the engine in position on the bearers and firmly cement them to the bottom fuselage block.

Next fit the lead out wires to the bell-crank and open out the hole in it to fit the push-rod. If a suitable drill is not available file a square point on the end of the push-rod material and use this as a drill.

The lower spar doubler and spars may now be fitted followed by the bell-crank mounting which is supported on a piece of spare 1/2in x 1/8in spar material as shown on the plan. In addition strips of spare 1/2in x 1/8in balsa should be cemented in the corners where it joins ribs W.1 and W.2.

The next stage is to complete the fuselage bottom assembly by cementing the two 7/16in x 1/4in balsa strips to the outside of the bearers and the plan 1/2in x 1/8in x 7/16in block between them at the front as shown on the plan.

When the cement has set carve the bottom block to shape and cement firmly in place on the underside of the wing. While this is drying the rudder can be built up from parts F.1 and F.2 and the elevator hinged to shape and drilled to take the twin hinges, if used. (These are strongly recommended as being much more durable than tape hinges).

The fuel tank should now be cemented in place on top of the engine bearers using two strips of 1/2in x 1/8in balsa as a platform.

Next bend the push-rod to shape from the 16 s.w.g. wire supplied and fit it to the bell-crank which can now be bolted in place on its platform after threading the lead out wires through the ribs.

The centre section can now be covered with 1/16in balsa sheet as shown on the plan and the fuselage top block cemented in place followed by bulkhead B.1.

The spar and leading edge ends should now be trimmed to length and the tip blocks cemented in place. (The starboard one being first hollowed out and the tip weights cemented inside).

The trailing edge can now be drilled for the hinge and both it and the rudder should now be cemented in place. The rudder should now be cemented on to the fuselage. The elevator should now be cemented in place in a slot cut to fit it. Fillets of scrap 1/8in. balsa should be fitted on either side to stiffen it as shown.

The fin can now be cemented in place in the slot cut in the top block.

Next remove the engine from the model and build up the cowling as shown in the sketch, temporarily cementing it lightly onto the engine bearers.

The tip blocks and leading edge can now be carved and sand-papered to shape as can the top block and the outside of the cowling.

When this is done remove the cowling and cover it and the bottom block with the buckram supplied using a 50/50 mixture of balsa cement and clear dope as an adhesive.

While this is drying add the two eyelets to the port wing tip and bend up the loops on the end of the lead out wires.

When the buckram covering on the cowling is thoroughly dry the inside may be carved away where necessary to clear the engine and the eyelet for the cowl fixing cemented in place. The holes for the fuel tube can also be cut if you are using the Frog "249" as can also the hole for the needle valve to suit either it or the Frog "349".

The model is now ready for covering with tissue.

The wings are covered in the usual manner using clear dope or office paste as an adhesive. Then cover the fuselage and fin.

Clear dope is the best adhesive for this purpose. Cut the tissue to the shape required, then lay it over the area to be covered. Fix it down with dope generously applied with a brush on top of the tissue.

When the whole model is covered, water shrink the wing covering and when dry give the whole model two or three coats of clear dope.

The final colour scheme is left to the individual.

Finally give the entire model a coat of fuel proof lacquer. The engine and cowling can now be fitted and the cowl fixing made-up as shown on the plan.

FLYING.

Use 50 foot lines of 010in. single strand or 015in. three-strand steel, preferably the latter for combat flying as they are less likely to snag and break.

Always launch the model down wind. Remember that this type of model is extremely sensitive and that over-controlling at take-off is liable to cause trouble.

IMPORTANT:

It is most advisable to have a third party insurance when flying power-driven model aircraft. Full details of this and of the rules pertaining to stunt and combat flying can be obtained from the Society of Model Aeronautical Engineers, 19, Park Lane, London, W.1.