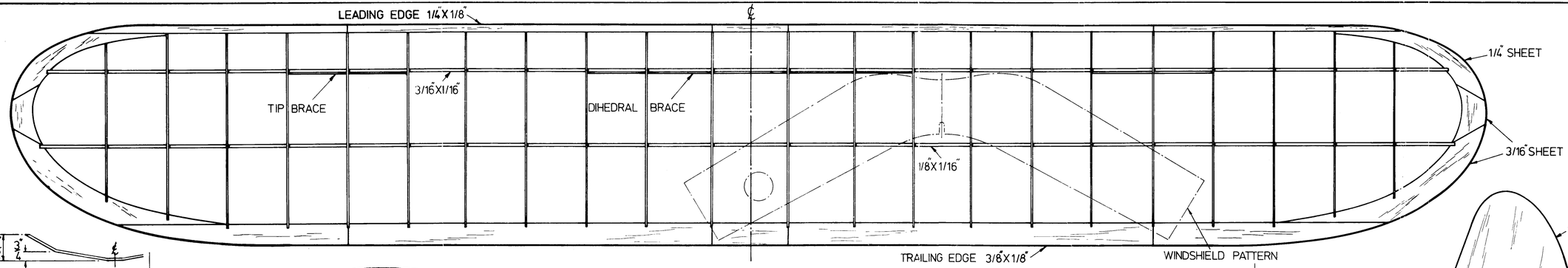
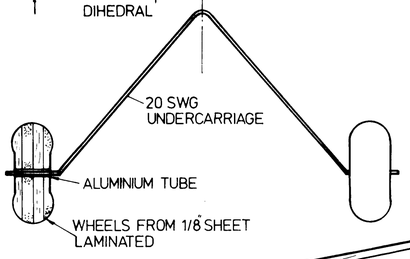
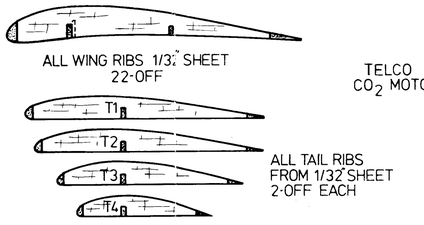
VIKING

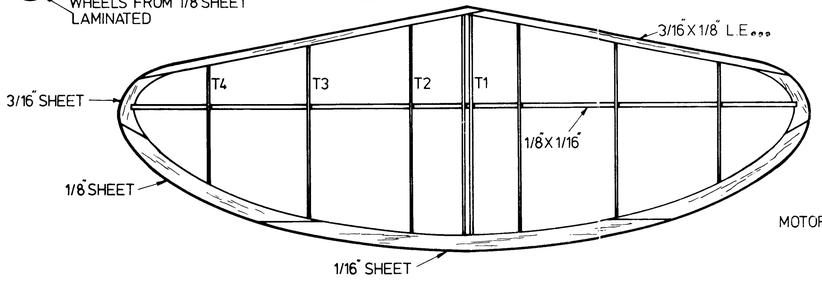
24 3/4" SPAN CO_2 VINTAGE REPLICA.

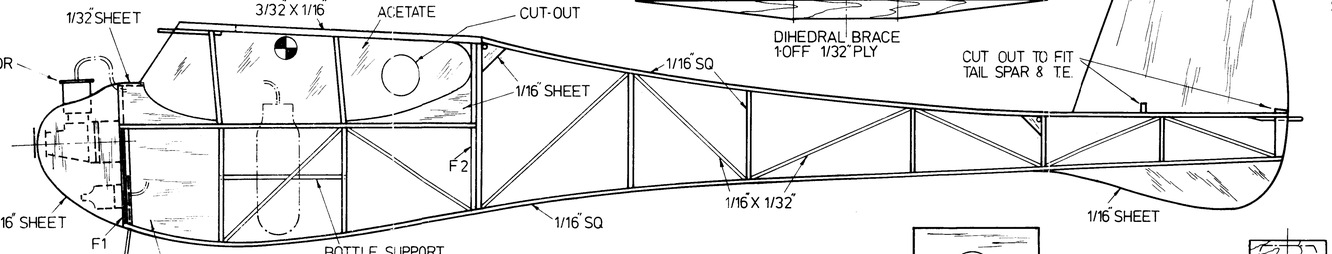
BY *J. H. WATTERS.*

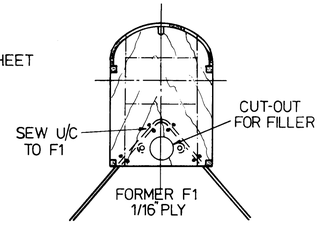


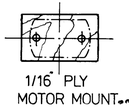


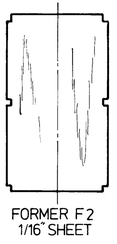


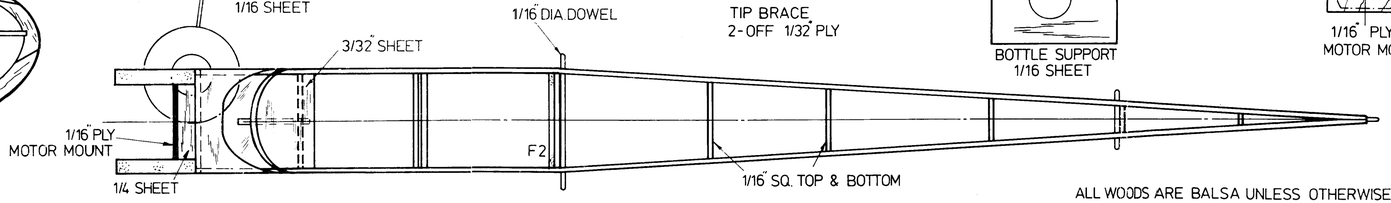












ALL WOODS ARE BALSA UNLESS OTHERWISE STATED.

VIKING

by John Watters —

A 24¾in. CO_2 powered suitcase size replica of that popular vintage model of 1940.

THE ORIGINAL full-size model 'Viking' was first produced in America in 1940 and was powered by an *Ohlsson & Rice* 23. This CO_2 version is a scaled down replica of that model with some structural modifications to suit CO_2. The model is not difficult to build and I am sure could be easily attempted by any relative beginner.

Fuselage

Start to build the fuselage by first selecting some firm 1/16in. sq. pieces of balsa to make the top and bottom longerons, the spacers need not be as hard. Two identical fuselage halves should be built, one on top of the other, including the sheeting at the nose and all the fillets. When completely dry remove the two halves, split them apart and sand smooth. Next re-pin one of the fuselage halves down onto your building board and glue on formers F1 and F2, using a small set square to ensure that they are square to the frame.

Remove this structure from the board when completely dry and add the other fuselage side to the formers and allow to set. Pull the fuselage frames together at the tail post, positioning directly over the centre line on the top view of the plan and glue together holding with either a clothes peg or masking tape. When the glue at the tail posts has set add the remaining top and bottom spacers.

The undercarriage wire and engine mounting block can now be fixed onto former F1. The motor can be temporarily fitted and the 1/32in. sheeting added to the front of the cockpit. The piece of sheet to locate the gas bottle can be added if required (I find this method of holding the bottle works quite well). Finally fit the side pieces to the nose and sand the whole fuselage structure smooth.

Tail and Fin

The tailplane should be started by pinning the centre spar down over the plan, also pinning down and gluing together the trailing edge pieces, joining them to the leading edge. Position the ribs and glue them in place. When the structure has set, sand to a smooth section. The fin and sub-fin are cut from a piece of medium hard 1/16in. sheet and sanded smooth.

Wings

Make a plywood or aluminium template of the wing ribs and by using either the sandwich method, or by cutting individually cut out all the wing ribs. The leading edge should first be carved and sanded to section, before dihedralling as the wing is best built as one piece and then sectioned at the dihedral breaks.

Pin the leading and trailing edge pieces down over the plan and build up the tip pieces at both ends, leaving out the two bottom wing spars for now. Glue the individual ribs in place, cutting to the correct length as required but leaving out the ribs at the dihedral breaks. When dry, cut or saw through the leading and trailing edges at the wing tip dihedral breaks. Sand the mating edges of the leading and trailing edges to the correct angle and glue the tips in place, packing up to the required height. When the wing tip panels have set, glue in the wing rib at the joint.

Repeat this operation for the centre dihedral joints and allow this to set thoroughly before continuing.

Remove the completed wing structure from your building board and add the two bottom spars (making sure not to build in any warps!). Finally glue in the dihedral keepers and sand the whole wing to a nice smooth finish.

Finishing

Cover the model using lightweight tissue, first giving the whole airframe a coat of thinned down dope, sanding lightly after the dope has dried. Cut out the windscreen from thin acetate sheet, attaching it to the cockpit with either balsa cement or thinned dope.

If this is your first introduction to covering undercambered wings, the main point to remember is that the tissue must be stuck to all parts of the underside of the wing, to obtain the proper contour.

Attach the tissue to the structure by again doping the area to be covered. Lay on the tissue and rub over the doped area with your finger, keeping the tissue taut. Cover the whole model in the same way, trimming off any excess tissue with a sharp blade. Water spray all the tissue lightly, to shrink it and when dry apply a coat of thinned down dope about 50% dope 50% thinners.

Tissue decoration can now be added if you so desire, using thinned dope and a further coat of thinned down dope should be given to the whole airframe to finish. If you feel uncertain about doping the wings and tail without them warping, pin them down onto a board whilst the dope is drying.

The wheels are made from laminated pieces of balsa sheet, which were first roughly hand-carved and finally sanded smooth. A small piece of aluminium tubing being epoxied in the centre of the wheel for the axle bearing. Any lightweight wheel can be used but try to keep it in character with the period.

My model finished up with an all-up weight of 40 grams and required only a small amount of ballast in the tail to get the balance correct.

Test flying took place early one morning in less than ideal flying conditions for CO_2, although the wind was light, it was cold. Test gliding the model showed a slight dive, this was cured by placing a piece of 1/32in. packing under the trailing edge of the tailplane. Low powered flights were then tried, using a gas charge. The power with each flight was built up to a final liquid charge. The model proved to be a very stable flyer and in the cold conditions performed very well — roll on the warmer weather.

Heading: daughter Nicola with 'Viking' prior to first flights.

Right: completed structure ready for covering. Far right: tank installation for CO_2 motor. Below: finished model ready for its first test flight.