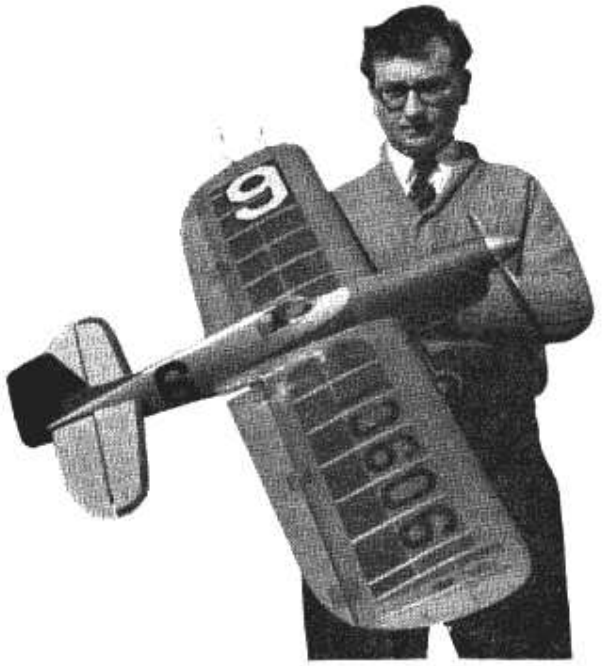


Thunderbolt

A big stunt model with modern lines

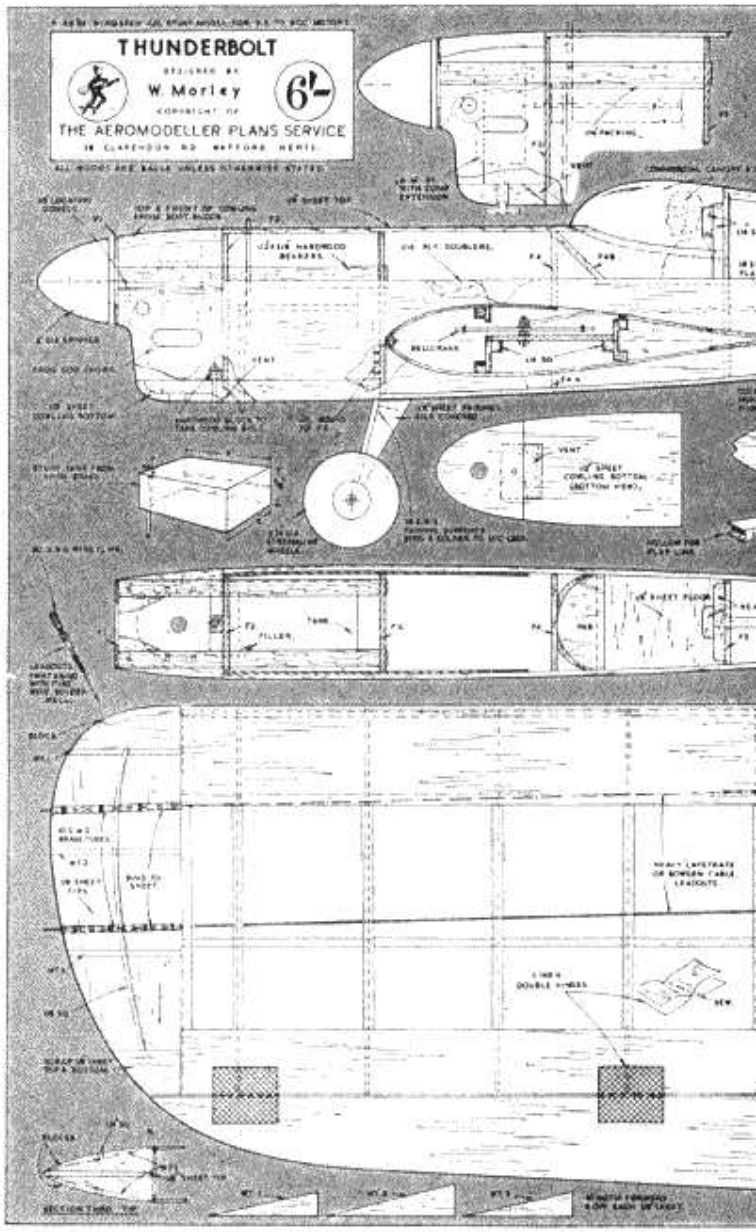
by BILL MORLEY

TOWARDS THE END of 1951, Bill Morley decided to produce a stunt model that would incorporate the good looks of a team racer together with the smoothest and most precise possible flying characteristics. It was felt that the average British stunt model at that time was far too small for top-class *precision* aerobatics, so he thought he would try to forecast the type of model that would be produced during the next few years by then current American trend in stunt design.

That Bill was successful in this is shown in the similarity between "Thunderbolt" and the designs of Bob Palmer (considered to be the world's leading authority on aerobatic C/L models) such as "Smoothie" and "Pow Wow", and now "Thunderbird". The original weighed 2½ lb. with fuel and prop, but it was built rather heavily. Using suitable wood and finishing carefully, it should be possible to build a "Thunderbolt" around 28-32 oz. Every expectation regarding handling was fulfilled, the model flying quite slowly and being extremely smooth and rock-steady right through the stunt pattern on 60-65 ft. lines, depending on weather conditions.

Construction is quite orthodox, and presents no particular problems, providing you take your time. Commence with the wing. Pin down the front lower main-spar, to which the ribs are then cemented. Add the front and rear upper main-spars, leading edge and top half of trailing edge while still on plan. After allowing to dry thoroughly, remove wing and cement in the rear low spar and bottom half of trailing edge. Incidentally, the spars will have to be spliced, so don't forget to stagger the splices. Glue in the ⅛ in. sheet webs and the ¼ in. square supports in the centre section, followed by the bellcrank platform. Next fit the bellcrank, stub lead-outs and flap pushrod. Leave the latter slightly overlength and don't bend them over yet. Add both tips, leaving the front fairing blocks only roughly carved to shape; sew on the 10 s.w.g. tube lead-out guides and solder the flexible cables on to the stub-lead-outs. Pedal cycle 3-speed cable is best for this purpose. Cement on the leading edge and centre-section sheeting and cap-strips. Add the inside flap only, into which is recessed the flap horn, well cemented. Sand the entire structure with fine sandpaper, finishing off the wing tip fairing blocks.

Cut out all fuselage parts. Glue fuselage doublers to sides and weight them down while they dry. Bend u/c to shape and bind to F.3 with strong thread. Make up an assembly consisting of F.2, the engine bearers and F.3;

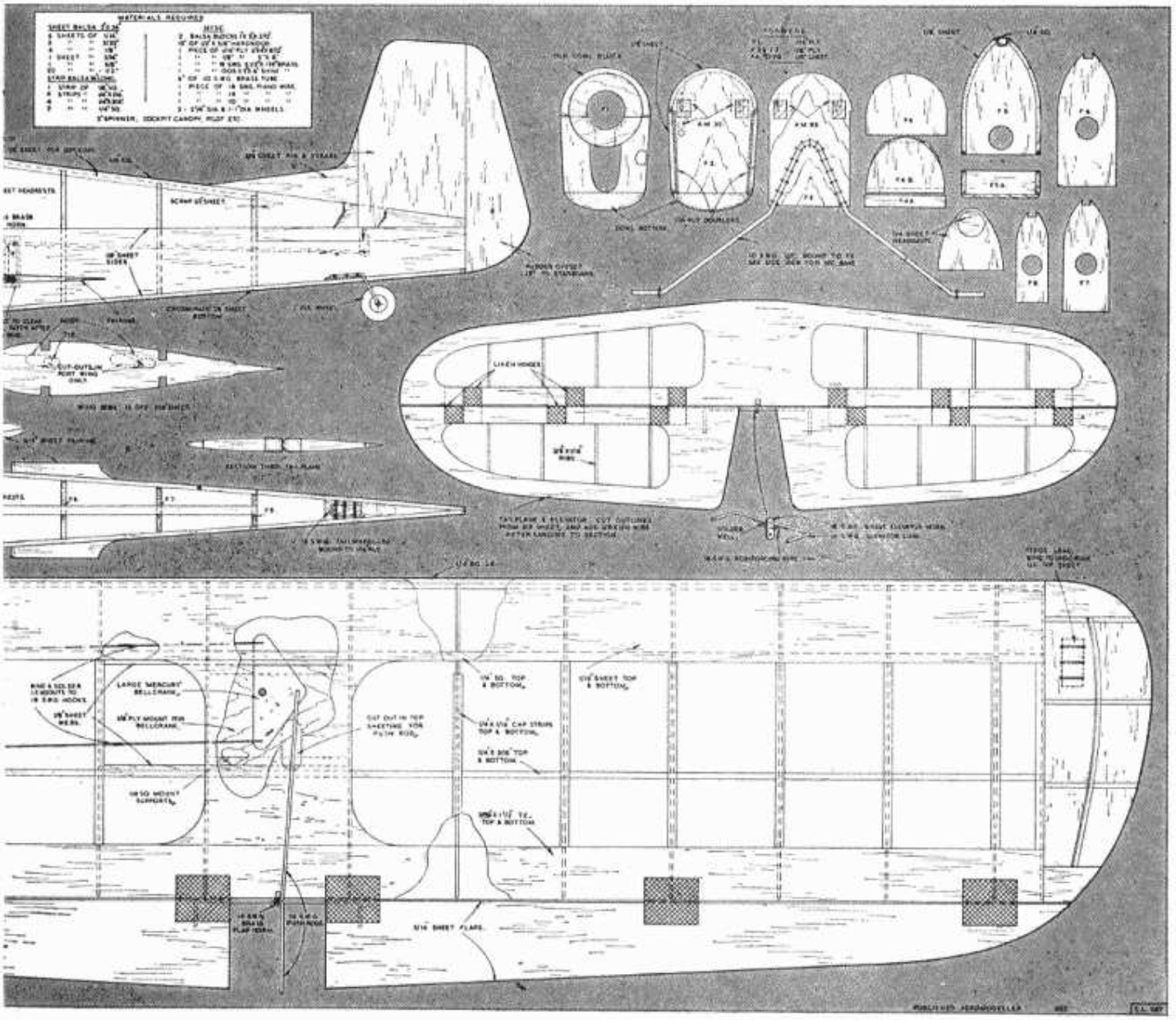


glue the fuselage side to it, clamping w banith rubberds until set. Pull in and cement together the ends of the sides, then add the rest of the formers. Cut out the small piece to clear the flap horn. Slide the wing through the fuselage, line everything up dead centrally, and stick the two together really strongly. You may now add the outer flap. Bend over the end of the push rod so that when engaged, the bellcrank and flaps are both at neutral. Replace the small piece in the side and sand smooth.

Make up the tailplane/elevator assembly, cut away the rear end of the fuselage to accommodate the tailplane and cement into position. Insert and fix in place the main pushrod. Add $\frac{1}{4}$ in. square top longer on rear of cabin and cement fin into place, followed by $\frac{1}{2}$ in. sheet fuselage fairings either side. Leave these square for now.

Solder up tank and glue it strongly underneath bearers. Stick on fuselage bottom and tail wheel. The front turtle decking can be made in one piece by choosing some flexible medium $\frac{1}{8}$ in. sheet, wetting the outside and rubbing cement on the inside. Trim to shape rear of the, cabin is done in the same manner, but in two pieces. Cut out the cockpit and fix in floor, pilot and headrests. Stick on canopy.

Fix motor to bearers, add top halves of cowling and F.1. The detachable lower half of the cowling is made up from front block, $\frac{1}{4}$ in. sheet sides and $\frac{1}{8}$ in. sheet bottom. Pack the ports of the motor with cotton wool. Sand the entire fuselage and cowling to a smooth pleasing shape. Cover wing and tail with lightweight silk or heavyweight tissue, and finish the model to your own taste. When completed, without fuel but with prop, the model should balance midway between the front lead-out and the pivot point at the wing roots. If it doesn't, add lead until it does.

Please, please, test fly on a calm day!

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