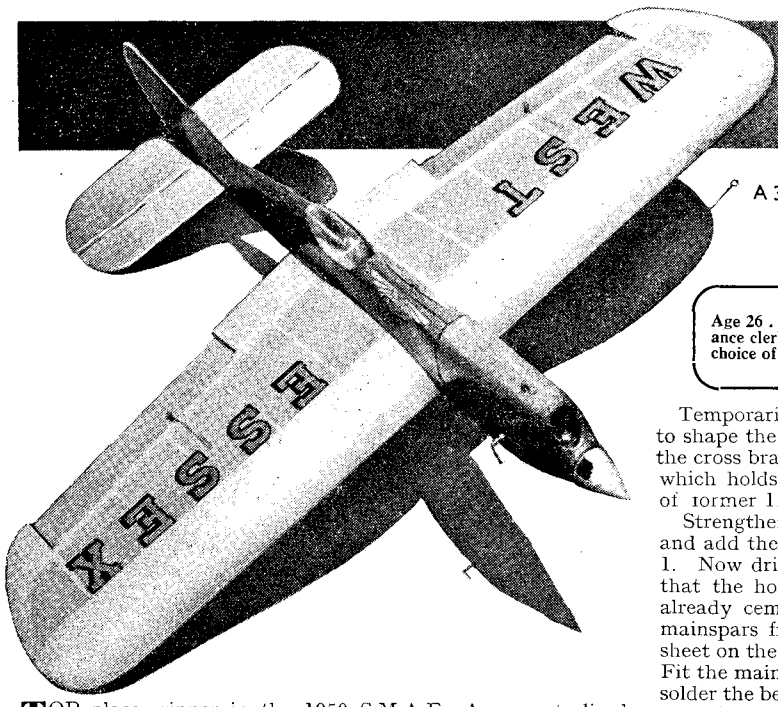

A38" HIGH-SPEED STUNT MODEL

BY

KEN MUSCUTT

Age 26 . . . . Member West Essex Aeromodellers . . . . A Fire Insurance clerk . . . . Rabid control-line enthusiast . . . . Renowned for his choice of Fin profiles . . . . Currently interested in team racing.

TOP place winner in the 1950 S.M.A.E. Area centralized stunt contest for the London Area, and third place at the popular All-Herts Rally, the Meteor presents a complete change in aerobatic design.

It is the outcome of a desire to get out of the box-car rut and an effort to combine high speed stunting with good looks to get those extra 20 appearance points, recently added to the S.M.A.E. stunt schedule. The result has pushed the wing loading figure way up to 17¼ ozs. per square foot; but with power of the calibre of the modern 5 c.c. glow plug engine, its 75 m.p.h. flying and stunting speed, turns the high weight figure to advantage, for never once have we seen the Meteor fluffed by wind or slack on the lines. Ken Muscutt's special manœuvre at contests bears out the success of his outboard flaps, for few models are capable of repeated square bunts, with really square corners and no slowing up, no matter how many are executed.

Construction.—Start by cutting the engine bearers to shape and drilling to take your chosen engine. Strips of 1 m/m. plywood, ¾ in. wide, are Durofixed to the outside face of the bearers. Cut out the lower fuselage sides and bottom from hard ⅛ in. sheet. Formers A and B are from three-ply. Now bolt the bearers to the engine and Durofix the three-ply formers in place as shown in the sketch . . . Don't forget to precement each joint where hardwood parts are used. Lock the heads of the engine mounting bolt with a piece of sheet brass or tin-plate soldered in place. When that has set thoroughly, remove the engine and fix the sides to the bearer unit. Start on the wing by cutting the ribs from medium ⅛ in. sheet and the port wing tip from hard ¼ in. sheet.

Assemble the wing upside down on the plan by first laying the top spar so that it extends to the port tip but falls short of the opposite tip by 1½ ins. Cement the two centre ribs in place so that the L.E. and T.E. will be at the same height as the building board. Fix the tip ribs in the same way and add the L.E. Add the rest of the ribs and the 1/16 square false spar. The bottom spar and lower half of the T.E. inboard of the flaps can go on next. Position the brass tubes for the lead out wires and add the port wing-tip parts.

Return to the fuselage and cement the bottom in place between the sides. The angles are filled with soft ½ in. × ½ in. from former B, back to the tail. Two tapering pieces of hard ⅛ in. sheet should be cut to fill the bottom forward of B, and a piece of ¼ in. sheet cemented to the inside and bottom of the fuselage forward of A.

Temporarily install the engine with a 1½ in. spinner fitted, to shape the lower nose. Secure the drop-out u/c tubes with the cross brace of hardwood or ply and add the plywood plate which holds the bellcrank pivot bolt. Add the bottom part of former 1.

Strengthen the wing centre section with lengths of ¼ in. × ¼ in. and add the ½ in. × 5 in. 1-m/m. ply between the spars at ribs 1. Now drill through the wing in front of the main spar so that the holes will line up with that in the bellcrank plate already cemented in the bottom of the fuselage. Web the mainspars from rib 1 to rib 3 with pieces of hard 1/16 in. sheet on the rear faces of the spars with the grain vertical. Fit the main lead wires with their ends turned up ⅜ in. and solder the bellcrank, with 3/16 in. wire exposed through the top of the bellcrank. Study the sketches for detail of fixing the flap bellcranks and make sure that there is no slack on the 22 s.w.g. lead-in extension to allow vibration to create flap movement.

Note that the port flap is connected only to the rear lead-in by means of a piece of 16 s.w.g. wire. Now add the other 1/16 in. square false spar and fill the space between with 1/16 in. sheet.

The flaps are made by cutting out four pieces of hard 1/16 in. sheet, and cementing lengths of ⅜ in. square to two of them. The sketches show detail of the mode of hingeing.

The flap horns are made from pieces of tinplate soldered together, and bushed with a 3/32 in. length of 16 s.w.g. brass tubing. Durofix to the flap bottom surface and add the flap pivots to the main wing structure.

With the controls at neutral and the flaps temporarily in place, connect the flap bellcranks in the wing with the control horns by means of the 16 s.w.g. push rods. Make sure that everything lines up. Now finish the flap by adding the top surface, remove and apply a couple of coats of dope. The elevators are each made of two pieces of 1/16 in. sheet with the 16 s.w.g. control horn sandwiched between them. Attach to the tailplane.

With the flaps removed, slide the wing into the fuselage, re-fit the flaps and complete the bellcrank assembly by fixing the 6 B.A. pivot bolt. Connect the main push rod to the elevators, and trim for neutral by moving the tailplane backwards or forwards, before cementing in place. Now permanently fix all the control mechanism and fit the 1/16 in. sheet flap shrouds on top of the full spar, and cover the leading edge of the wing with hard 3 in. sheet. Add the cap strips to the ribs and the upper portions of the trailing edge when the wing has been glued in position.

A piece of 1 in. wide three-ply is cut to fit across the fuselage and to support the pivot bolt.

Cement ⅛ in. × ¼ in. spacers across the top of the fuselage at the positions of the top formers, making sure that they do not foul the push rod. Construct the fin and fit to the fuselage with packing to allow about ⅛ in. offset. The fuselage top is covered with soft 1/16 in. sheet in two pieces and a commercial bubble cockpit will add the finishing touch.

The original flew on 70 feet. of ·012 in. control line with a 9 ins. × 6 ins. fairly wide bladed propeller. With a reasonable engine this model will do all that you can think of—if your thoughts are fast enough!