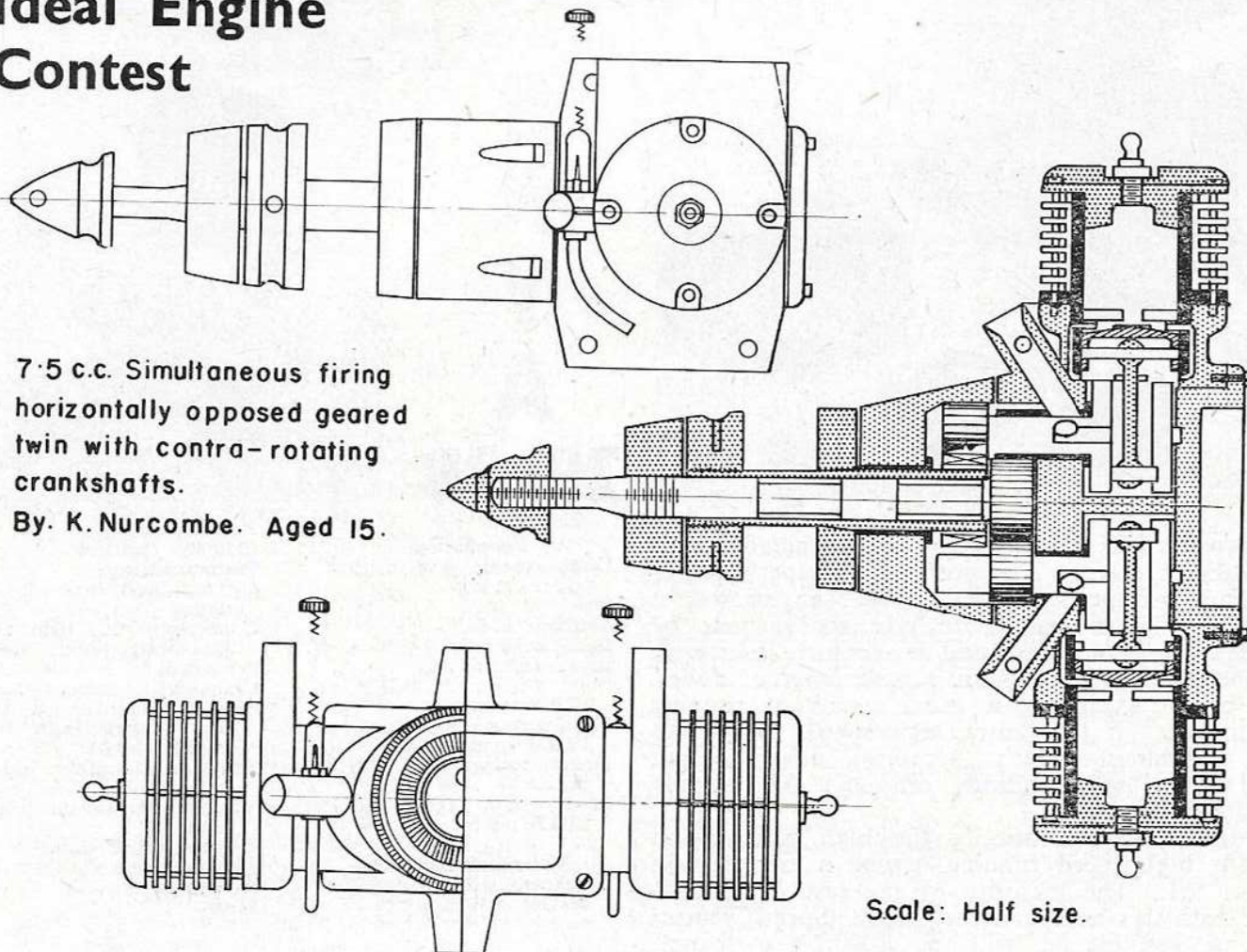


Ideal Engine Contest

7.5 c.c. Simultaneous firing horizontally opposed geared twin with contra-rotating crankshafts.

By K. Nurcombe. Aged 15.



Scale: Half size.

WE CONCLUDE OUR Ideal Engine Contest with the most ambitious of all the entries received. The design is not necessarily practical, for one thing, how could one start the independent cylinders together with the co-axial prop drive; but the thought behind it is worthy of study, and all the more creditable when one realises that the designer is but 15 years old.

To Keith Nurcombe of Hall Green, Birmingham, we extend congratulations, and a subscription to AEROMODELLER for one year.

As can be seen in the drawing, reproduced half actual size, each cylinder drives a shaft which

is geared to the co-axial propshaft at an estimated ratio of 3 : 2. The pistons are specially shallow and lightweight in construction to minimise vibration and symmetrical design of the two cylinders is essential to assure synchronisation.

"Just think," says young Nurcombe, "of the possibilities in scale models. Torque elimination might make a scale *Westland Wyvern* or *Fairey Gannet* practical for radio control and with separate throttles on the two cylinders, control-line V.T.O. *Lockheed Salmon*, or *Convair Pogo's* would be fun to fly through scale-like manoeuvres."

CHANGI (continued)

align the formers and with stringers to make up the semi-elliptical cross section.

Trace two sides on to 3/32 in. sheet medium balsa, marking former positions. Cement together at the rear and place upside down over plan view, joining together at former positions with 3/32 in. square spacers. Whilst this is drying, cut out all formers (including holes for engine bearers). Cement bearers into F1—F3, bind and cement u/c tubes to F2 a F3. When dry cement in formers F1—F5, first taking care to check the correct alignment then fit remainder of formers, followed by stringers, wing platform, fin guide, and plank or fill in with scrap balsa where indicated. Upper cowling was built from 1/8 in. by 1/4 in. planking and the lower cowl from soft block.

Mark position of wing ribs on spars which taper from 1/2 in. by 1/8 in. to 5/8 in. by 1/8 in. (main spar) and 1/4 in. by 1/8 in. to 3/16 in. by 1/8 in. (rear spar). Place spars over plan, cement ribs on, noting W1 on each half is inclined to give correct dihedral angle. Follow with the leading edge and trailing edge, finally add the tips and when dry, sand them to shape. The centre section is sheet covered on top only. Fix in the ply dihedral braces and assemble wing panels at correct angle. The Tailplane L.E. is 3/16 in. square steamed to shape, otherwise construction is same as for the wing. Cover all model with heavy weight tissue, give three coats of dope and fuel-proof the fuselage. Bind and solder the undercarriage, fairing in with 1/8 in. sheet balsa tissue covered, solder wheels in place on axles. Trim by adjusting the tailangle for a smooth glide and if built to the plan you'll soon be rewarded with a pleasant steady climb and floating glide.