

R.C.M & E KIT REVIEW

NO.41



'CONTENDER' is perhaps the wrong name for this imported American kit—'Challenger' would have been far more appropriate with that 'eight hour assembly' notice on the box lid. Indeed, this model had caught my eye some time before in the advertisements from American modelling magazines, and always it was this rapid building time which caught my attention—particularly attractive to a notoriously slow builder!

Actually, these advertisements were most misleading—a fully finished, highly decorated model being illustrated alongside a (presumably!) empty box with the slogan 'eight hours from this to this'. Being rather more realistic, I assumed that this, in fact, referred to just the actual building and without any form of finishing.

Naturally, a foam wing would be an automatic necessity in any quick-build kit. Wrong! Lifting the lid revealed a well-packed box of balsa, with no foam wings, and no space for them if they had been accidentally omitted! A glance at the beautifully clear plans (yes, plural—they have to be joined with adhesive tape) revealed that nothing was missing, and that the model featured entirely built-up construction. Where, then, lay the secret to the magic 'build-it-in-eight-hours'? This was still not clear, but the way the die-cut balsa parts fell from their sheets gave a clue.

On studying the plan it was noted that either an upright or inverted engine installation was permitted (alternative ply formers being provided) and the inverted position was chosen to preserve the appearance of the 'fighterish' design. It was also clear that the equipment to be installed (early Kraft KP series) was considerably larger than modern equipment, and my installation would therefore be different to that advised. In view of this complication, extra time involved to install this bulky (though

ultra-reliable) equipment has *not* been included in the running total of 'time taken' mentioned hereafter.

The fuselage is basically a simple box, to which a keel is added top and bottom to give it more shape and character. No formers are used aft of the wing seat—the full-length fuselage sides being glued either side of a balsa crutch and then sheeted on the bottom surface. This is very quick and easy, and *must* result in a straight fus.—indeed, the basic fuselage, including the bottom keel and wing mounting blocks, plus servo tray rails (modified to accept the KP series), was completed in just 1½ hours, before attention was switched to the wings.

In typical Topflite fashion, the wing was 'self-jigging' insofar as the ribs had tabs added to the top of the leading edge, enabling the wing to be built flat on the board inverted. The secret of the speedy construction here is a structure made up of relatively few, substantially proportioned components cut *exactly* to size. For instance, the leading and trailing edges are enormous by 'normal' standards and there are a minimum of wing ribs—all in 3/16 in. balsa. The result of all this is a tough wing which does not need leading edge sheeting, which can be built in just one hour, 50 minutes, including the servo mounts. The leading and trailing edge joints at the centre are firmly reinforced with bass blocks, while the hardwood landing gear stretches right across the centre section. Despite the lack of leading edge sheeting, the wing is very strong thanks to its massive leading edge and ¼ in. x ¾ in. hard balsa spars.

Back to the fuselage, and the first problem arose over the fuel tank—which is not provided. The plan shows a suitable tank installation for the up-

right engine fuselage but not for the inverted. This situation was then complicated by the fact that I would need to install the power pack within the tank compartment, as the fuselage would be filled with the neat little tin boxes (referred to by the experts as receiver and servos, I believe) and then further problems arose as I prefer to have an accessible tank, yet dislike hatches. These snags were overcome by making a new former from ¼ in. ply then cutting a large hole in it to permit a Graupner rectangular tank to be inserted from the wing position—a system used on the *Topflite Taurus*. The power pack would be encased in foam rubber, then wrapped in polythene, lodging above the tank. This then gave access to all items which might need servicing at a future date. The tank was made up with a single vent and the fuel tubing to this and the feed pipe would then lead out through the front former—the whole 'mod' taking just an hour, and not included in the 'official' time schedule, as it was a deviation from the original.

This former and front former were then epoxied in position (using 5 min. epoxy, of course), then the rear 'spine' was added—taking in all just over one hour.

The fuselage aft of the cockpit is not intended to be sheeted, the Monokote covering envisaged to be used, providing the 'shape'. As this plastic film was not to my choosing, 1/16 in. balsa was used to 'triangulate' the top decking.

The wing was then removed from the board and the top spar added, followed

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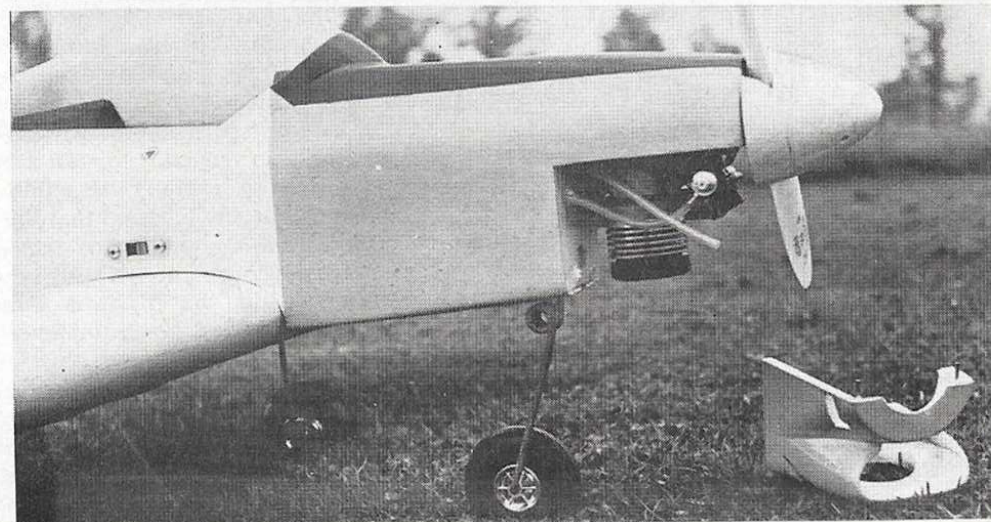
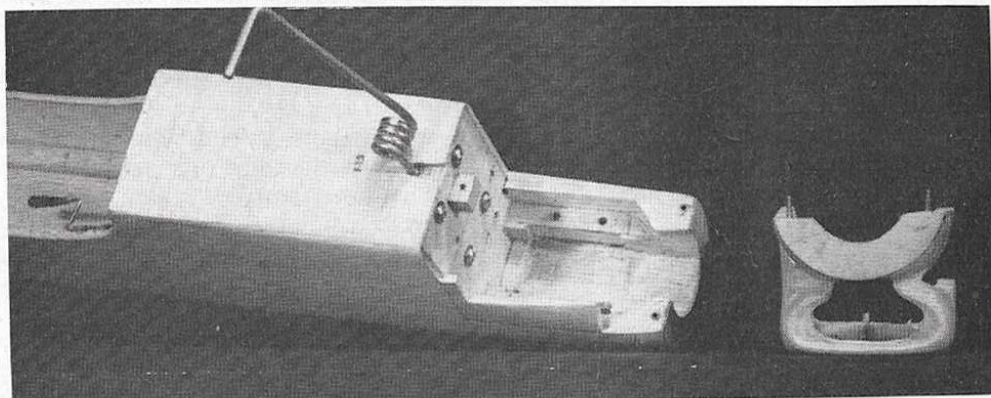
Flite TENDER

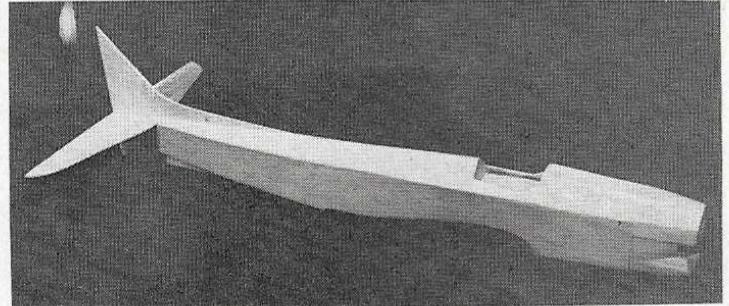
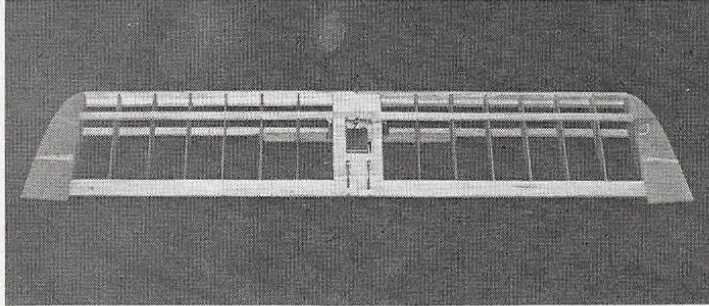
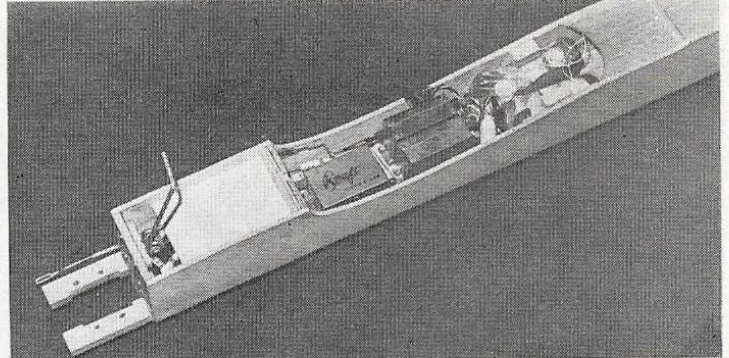
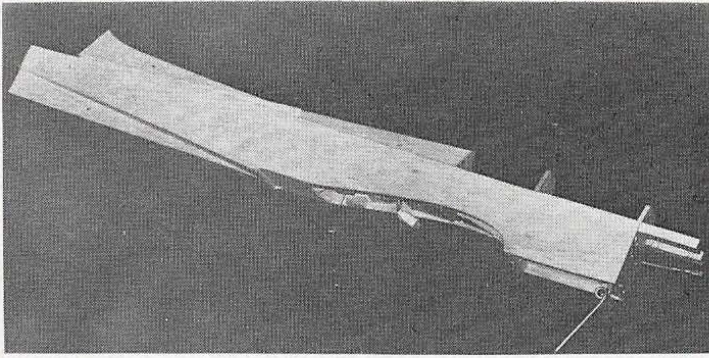
by the aileron servo, another trouble-spot for the 'old-fashioned' gear! The design utilises strip aileron horns attached directly to the servo via Quick links (not supplied). Naturally, the single push-pull servo was unsuited to this arrangement, so a Micro Mold 120° bellcrank was sited between the servo and the control horns to move the two surfaces.

Once more to the fuselage - this time to mount the nose-leg (and in my case add a tank floor), followed by the control runs and nose bottom sheeting. At the same time the engine holes were drilled and blind nuts installed for convenience.

Wing tips were next to be added, followed by the 'fixed flap', which both gives the wing its distinctive shape and provides a pivot for the aileron horns. Religiously following the instruction, the front fuselage was then added, including the cowl.

This latter item proved to be the biggest time consumer of all! The cowl supplied consisted of a large block of balsa, with the instructions 'carve' given to it. Initially, it was tack cemented in place and carved to the appropriate external shape, then it was removed, the engine bolted in place, and the fun really started! Ever tried to fit a big Spread of components show the high degree of die-cutting - no balsa knife needed for this job. Below, the cowl is located by wire dowels slotting into brass tubes at the front, single wooden dowel at rear. No advice on cowl attachment is provided. Close-up of nose reveals Merco Blackstreak readily accessible, thanks to quickly detachable cowl. Canopy was dyed dark purple.





block of balsa around an engine with a very bulky carb (Merco Mk. IV) while preserving a 'scoop' type of appearance, and blending the whole into a spinner shape—using nothing but sandpaper and a knife? Tedious! In fact, more than five hours were spent on this item, including strengthening it with epoxy and nylon around the carb area and facing it with 1/32 in. ply.

With the addition of the sheet tail-plane and fin, the model was now completely ready to finish, including the equipment installation, and had taken a total of just over nine hours to build 'as per kit'—not including the cowl, which, of course, would have been considerably quicker if the upright engined version had been built. In this state, the fuselage/tail assembly weighed 1 lb. 5 oz., the wings, including the under-carriage legs, 1 lb. 8 oz.—good, but it would obviously be impossible to meet the quoted 4½ lb. even if lightweight gear was used.

Presumably, one is intended to use Monokote for the finish, but, being old-fashioned at heart, the conventional (and heavier) methods were employed. The wings were nylon covered then sprayed with white cellulose overall before adding fluorescent orange wing patches via a can of *Humbrol 'Fire Orange'*. The fuselage was doped, tissue covered, then had three coats of white polyurethane paint added for its qualities of hardness and fuel resistance, before the orange trim was applied to the nose and fin outlines.

With the equipment installed, push-rods and wheels, etc., fitted, the C.G. was checked and found to be within the tolerance allowed—very convenient! The weight now stood at 6¼ lb. not *bad* for a 650 square inch model, but rather heavier than if Monokote had been used for decoration.

Top left: basic box fuselage construction is cleverly 'prettied-up' by the addition of keels top and bottom. Installation of the somewhat bulky Kraft K.P.4 equipment is shown at top right. Receiver is encapsulated in foam packing and polythene bag. Ample room for modern equipment. Simple wing structure is evident in picture at lower left—note full-width V/C block, hefty spars and leading edge. No sheeting required. Lower right shows completed fuselage with top section aft of cockpit-sheeted in preference to Monokote.

So, to the flying field. Passing the transmitter to a far more experienced club member, the Merco was fired up, gear checked (. . . and the controls double-checked for the correct connections!) before placing the model on the mown take-off strip. The Contender took off after a longish run due to an over-rich needle setting and climbed steadily away—straight and true, much to my surprise! Indeed no trim alterations were necessary during the flight. The over-rich setting proved to be *very* over-rich and it trundled round smokily throughout the tank run, implying that a much lower powered engine could certainly be employed.

With the engine then peaked out, a second flight was made—this time it was rapidly airborne and the air speed somewhat higher! Aileron response was found to be good, but the small area of these surfaces prevented the fast roll rate associated with 'hot' aerobatic models, while pitch control seemed a little too sensitive for my own comfort. A dead-stick landing provided the opportunity of testing its low speed handling. Verdict, excellent—no tendency to stall, no wing dropping and a really flat glide. Further flights that day revealed that the elevator control was improved by moving the pushrod down one hole on the control horn, while the machine was very easy to fly—in fact best equated as being similar in characteristic to a *Taurus* which I have flown for some considerable time, although somewhat quicker. The distinctive colour scheme (sun glasses should be worn!) makes for an unusual yet modern appearance to

the flying scene. The whole aerobatic pattern is almost without saying eminently possible, although the great reluctance to stall does make a spin very much of a 'hit or miss' affair—frequently miss in my case!

Having now flown the design for several weeks, one worthwhile 'mod' to make has arisen. The fuselage sides are simply 1/8 in. balsa, with no doublers, so that in the event of an 'arrival' into grass (as distinct from a smooth landing) the engine mounting blocks attached to the fuselage tend to split the sides. The addition of a 1 mm. ply doubler to spread the 'load' of these shocks would, I feel, prevent this from happening at little weight penalty. Indeed, this has now been incorporated—ply doublers being glued in over the entire length of the wing seat area between formers F5 and F9. The wing locating dowel has also been increased in size to 1/8 in. diameter.

All in all, a very quick-to-build model, a good performer, and excellently engineered, all for a price of £22—although this does not include such hardware as spinner, wheels, tank or Quick Links. On reflection, *why* is it so quick to build? Mainly good design and perfect die cutting—a balsa knife was virtually an unused accessory!

British Distributor:

RipMax Ltd.,
80 Highgate Road,
LONDON,
N.W.5

Price: £21.85