

## Built and flown by Norman Butcher

**L**OOKING for a replacement for my *Thor* which, with well over 60 hours flying to its credit, is getting a bit frayed round the edges, I decided to have a go at a British kit and as Veron's *Concord* is the first aerobatic full house multi kit, of a major manufacturer, to reach the market, it was the obvious choice. The kit is exceptionally complete even to such items as wheels and K-links and the plan exemplary in explaining construction. Before going on to examine the model in detail and to make one or two criticisms, let me state at once that I consider the *Concord*, at £11 15s. 6d., is excellent value for money, in comparison with any other kit on the market.

### Design

Aesthetic feelings about the appearance of a model are purely subjective and you either like it or not,

**L**ET us introduce ourselves. Dave Hughes is on the left and Norman Butcher on the right, the photo being taken after an outing with our *Thor*, now pensioned off after 18 months flying. We are practical modellers who thoroughly enjoy flying R/C and we aim, in RADIO MODELLER, to range over all R/C topics of interest to



so no comment on this aspect is valid. However, practical aspects of the design layout must be considered.

With a shoulder wing set-up such as the *Concord*, the fuselage, if of adequate depth to accommodate all types of gear, tends to look bulky. Despite its short moment arm this is avoided, but at the expense of insufficient depth to mount the normal size of relayless receiver (3 x 2 x 1in.) vertically, circuit board forward, for best crash resistance. The Rx is shown on the plan mounted lengthwise, and this is really the only way to do it. Apart from this point, there is more than adequate room for my O.S.12 Rx and four Brooks amplified Duramites, which are not the smallest of servos. Measurements would show that all the currently available gear, including proportional, can readily be accommodated.

people who build, fly, or sail models as we do—for pleasure.

A policy of RADIO MODELLER will be to feature, as often as possible, practical field tests of models and equipment. It is all very well producing strings of facts and figures for a test report, but we feel that all most readers really want to know is did you build it (in the case of a kit) or, in the case of equipment, did you try it in a model and if so did it work? Add to this details of any snags encountered or any special problems to overcome, and one really has all the practical information necessary. Where applicable, the more technical reader likes to study circuit diagrams etc., and these also will be included, but only as part of the whole, not as a test report in themselves.

Our first report featuring the Veron *Concord* starts on this page. If we have missed out on any points you think we should have covered write and tell us—we will be interested to hear from you. It is obvious that the time required for a field test precludes our trying everything ourselves, and we would be interested to hear from any reader who feels himself competent to assist in the building and testing of such models, or even trying new gear under the proper conditions.

Let's hear from you then!

I have already mentioned the short moment arm. This is a most distinctive feature of the model, but in no way detracts from the flight performance as will be seen later. Another noticeable feature is the dihedral which at first appears to be excessive. However, remembering that the *Concord* can be flown on rudder in a four or six channel version, it is not excessive, although for "full house" I recommend its being reduced by 50 per cent.

*Concord* is a big model, with plenty of area and this shows in the flying, which is not quite what one would expect from the thin, by latest trends, semi-symmetrical section, there being a definite tendency to "float" on the approach. Strip ailerons are a sensible choice for an "intermediate upwards" model.

**Construction**

This is basically traditional, with sheeted leading and trailing edges, sheet and block fuselage, sheet fin and built-up tail, which has probably more individual pieces than any other component, but is simplicity itself to build. As I said, the building information on the plan, plus the accompanying booklet, is excellent and I found no snags. I would judge the *Concord* as being well within the ability of any modeller of average experience.

**Quality**

As a modeller who tends to turn over hundreds of sheets of balsa to select the few I wish to use, I find it difficult not to reject much of the material in kits out of hand. However, I resist this and must confess that the kit models I have built have never been in any way inferior to plan-built, ultra-selective, designs. In the *Concord* I replaced two wing spars—one was warped and the other had short grain. Also one leading edge section which was much heavier than the other—and immediately replaced by the manufacturers. I felt that the ribs were on the hard side, but I graded them in sets—heaviest at the centre, without difficulty. Even so, one wing half was ½oz. heavier than the other and had to be balanced with lead.

The die-cutting of all components was impeccable, as was the fit of pre-cut items, while the spindle moulded fuselage top sections fitted with just enough overlap for comfortable working.

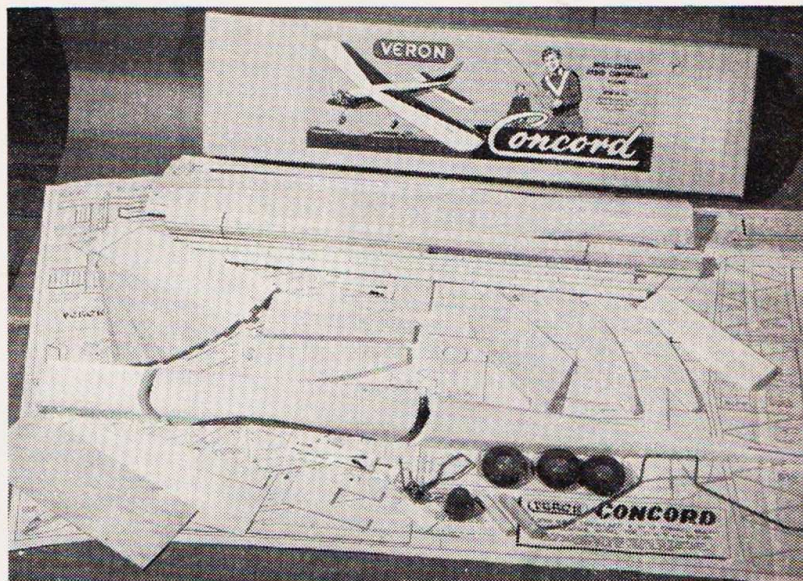
The inclusion of wheels, pre-formed wire under-carriage legs, "K" links, plastic 1¼in spinner, tissue and numerous other small items, make this an extremely complete kit, although it is, of course, to conform to postal regulations, "dry," i.e. without dope or cement.

**Modifications**

It is a great temptation when building a kit model to think "I wouldn't do it that way" and then proceed to make so many modifications that any resemblance to the original is purely accidental. However, certain variations from the original, notably matters of detail to suit ones own preferences are, I feel, reasonable and I must confess to attempting to "improve" the *Concord* in one or two ways!

Only two changes affected basic construction. Firstly I reduced the dihedral to half the recommended amount as this is adequate for full multi flying. However, I would emphasise that for less than full house, or for someone who intends to use *Concord* as a multi trainer, the dihedral shown on the plan should be adhered to.

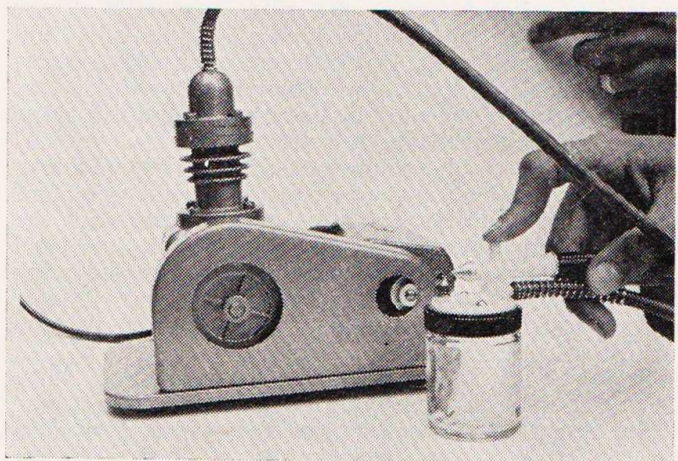
The Ripmax 'Maxispray' used for the 'Concord'. It is supplied complete with air brush type spray unit and costs £16. 10s. 0d.

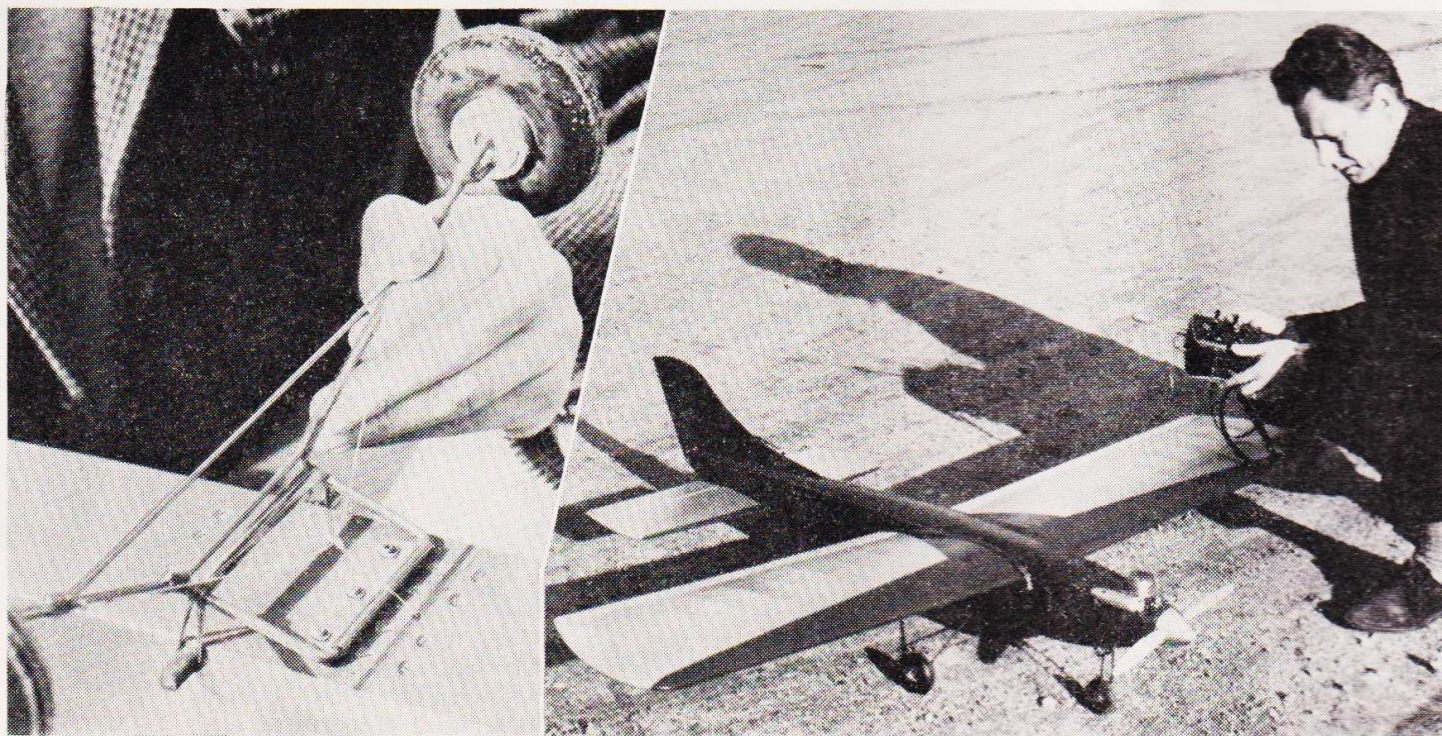


My second modification was to the method of obtaining the recommended downthrust. To pack up the engine with washers seemed a bit "agricultural," so I altered the pre-cut slots in the nose section sides to the required angle, so that the downthrust was built in. I do not suggest that this is essential, but it seemed to me much more mechanical.

Other constructional mods were to glue contra grained pieces of balsa wood as end plates to the ailerons, elevator, etc., to prevent warping; covering the entire bottom of the fuselage, back to the wing trailing edge, with 1/16in. plywood, to form a secure mounting on to which the Bonner servos and rear U/C could be bolted directly. I also used solid (soft) block on the tips flush with the leading and trailing edge sheeting. This was because I often fly from rough fields and the tips take a lot of punishment. For the same reason I double-sheeted the wing centre section, inserted a 6in. hardwood strip at the C/S trailing edge, and faced the wing/fuselage fairing and matching fuselage parts, with 1/32in. plywood.

I have always wanted a steerable nosewheel, so fitted one to my *Concord* and, to ensure accurate tracking (a good dodge which also helps a lot is to toe-in the rear wheels slightly), modified the attachment of the rear legs as shown in the accompanying photo. This is simple and practical, as the legs swing back in a heavy landing. I substituted a pair of Krick pneumatic wheels fitted with brakes,





for the wheels supplied in the kit, as we have a rather short landing strip and by taking the nylon "brake wire" into the fuselage at the pivot point of the U/C, no undue strain is transmitted to the servo when landing. Incidentally the spreader bar for the rear U/C is essential.

Having a 2½ in. Veco spinner on hand I substituted this for the smaller one in the kit, as giving a rather smoother entry and allowing more space to enclose the throttle linkage and provide a neat cowling.

It is recommended on the plan that the tailplane is detachable and held in place with rubber bands. I adopted this as a temporary measure to allow for trim adjustments and then glued it permanently in place after test flying. Incidentally, the entire construction was completed with P.V.A. adhesive, as the "flexibility" of this prevents stress cracks, and I find it is also the cleanest adhesive to use.

#### Covering and finish

The entire model was given a generous coat of sanding sealer, rubbed down, and covered with nylon doped on. I had difficulty with the nylon adhering to the wing ribs and puckering as it slackened off with the first coat of dope, and these creases took a lot of getting out. The obvious solution for next time is to lightly cover the ribs only with a wax polish, which will allow the nylon to slip and straighten itself out. I will tolerate any slight loss of torsional strength in favour of wrinkle-free covering. Four coats of full strength Humbrol dope gave a good base for the colour.

Having received samples of Hobby Poxo colour from Ripmax—silver and royal blue—the *Concord* provided the ideal subject for experiments with the finish which seems to have obtained universal acceptance in America. I elected to spray the wing and tail silver, using the excellent Ripmax "Maxi-spray" and finish the fuselage, and the trim, in blue by brush.

Hobby Poxo is a two-part epoxy resin finish with exceptional covering properties—4oz. of each colour being more than adequate for two coats. It has to be applied at a room temperature of 70 deg. F. but

Left: The method of hinging the u/c. Legs must not be raked forward or the landing shock may damage the hinge. Right: The writer does a pre-flight check. Leatherette case on O.S.12 is excellent to keep the hands warm this cold weather.

I found this easy to reach with two 3 kw heaters. The accompanying instructions are lucid and by following them rigidly I experienced no problems.

I made a mistake in spraying the first coat of silver unthinned, which speaks highly for the efficiency of the spray, but the result was very orange-peely. However, a second, thinned, coat did much to put this right and the resultant finish is quite the densest and most metallic silver I have yet seen.

Before painting the fuselage I sealed it with Hobby Poxo sealer, rubbed down with wet and dry paper. The colour flowed on easily and two coats were more than adequate.

Hobby Poxo is quite the easiest-to-use finish, given the correct temperature and conditions, I have yet encountered but, as with all high-gloss colours, it is very unforgiving in showing up every fault underneath. Applied over a good base the result can be magnificent—my preparation left much to be desired but, even so, the result is better than any I have yet obtained with the exception of my speed models, where I spent many hours on the preparation.

#### Flying

The final preparation of the *Concord*, installing the gear, re-assembling the O.S. Max 50, which needed a new piston/liner and connecting rod, after some 30 hours use in my Fokker D.VII, took place during perfect flying weather. With all systems ready to go it started to rain, but I crept out between showers and sneaked in the first few flights.

I don't know whether everyone is as nervous as I with a first flight, but I have resolutely to steel myself to record my impressions and note what trim alterations must be made, rather than just taking off and landing again, as soon as possible, in a sort of daze and not really sure that I have made a flight. Anyway, after checking all the controls with the motor running, trim was set at neutral and

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we were off. *Concord* was reluctant to unstick and I had to hold on up elevator, but a touch of trim and it was climbing steadily away in a gentle right hand turn.

A few circuits to get the feel and level it out, and I cut the engine to slow to check that the turn was not caused by excessive side thrust. No, it was definitely an aileron adjustment that was required, so, leaving the trim at the setting which gave level flight, I cut the motor and landed.

The degree of up trim on the elevator suggested that 1/16in. packing on the tailplane would provide adequate correction and a half turn on the aileron linkage was a start to straighten the flight path.

The next take off, at neutral trim, was fine but there was still a right turn. However, the flight was straight enough just to try a few manoeuvres to gauge control response. Loops were about right, but rolls were on the slow side, so land again to take another half turn on the ailerons and move the push rods up on the horns one hole.

The next flight was virtually straight and the extra aileron movement certainly speeded up control response, but, before I could begin to relax, the rain set in, so back home to glue the tailplane in place, incorporating the 1/16in. positive incidence.

On the next outing I filled the tank compartment with fuel via a split which had developed in the tank, so was not very happy. However, a new tank was soon arranged and the next outing was on a cold, very blustery day. The take-off showed that I had not built in quite enough incidence on the tail but, otherwise, the trim was fine—for a start—straight hands off, engine fast or slow. Loops stayed in line, but bunts were wandering off left and the motor was leaning out too much at the top.

Two turns on each aileron horn gave slight extra incidence to the wing—enough to fly with the elevator at neutral trim. This evened out the size of the loops and bunts. Inverted is a piece of cake—the merest touch of down trim being necessary. I could not get the *Concord* to spin. However, a kick

up elevator would almost certainly solve this problem. At the moment I have the elevator on minimum movement—about  $\frac{1}{8}$ in. either way—which is fine for all other manoeuvres. One slight snag with reducing movement by adjustment on the trim bar is that trim movement is increased as elevator movement is decreased, so I now have as much trim as elevator, which makes it a bit touchy to level out, although practice is making it easier.

Earlier on I mentioned the short moment arm. I had some reservations about this, as I felt it might make the model touchy longitudinally. In fact this is not so and the *Concord* is steady as a rock and in no way jerky in response to elevator control. The large area makes it tend to float, despite a flying weight of  $7\frac{1}{2}$ lb., but I prefer a model to “fly” rather than act like a powered brick.

With only about an hour's flying with the *Concord* it is, perhaps, too early to give a final judgement, but my initial impressions are all favourable. In the right hands (not mine) it can compete on good terms in competition, while it still remains docile. It is the latter aspect which is its best appeal; it flies well but it is also easy to fly and this does not always follow. Mine is a little touchy laterally, but anyone using this as a multi trainer, as which it is highly recommendable, would obviously use the designed amount of dihedral and then they would have no trouble.

People who have proportional gear need not think the *Concord* is a reed only model. Peter Cabrol's flies as well with the Citizenship currently installed, as it did with his R.C.S.10. Frank Knowles also has a *Concord* ready to fly with his F. & M. Proportional and I am looking forward to seeing how it handles for a real expert.

To sum up then, the *Concord* is a competitively priced kit of good quality and as easy to build as any model of this type. It is easy and pleasant to fly and could be handled by anyone with a modicum of experience. It would also be suitable as a first model, *provided* an expert pilot is on hand as instructor.

I like the *Concord* and am looking forward to the warmer weather so that I can notch up the flying hours in comfort!