

KIT REVIEW

EVERY NOW AND THEN, we all get involved in something which is over our heads! As a freelance journalist, author and model maker, this seems to happen to me quite a lot! "In at the deep end" is not just simply the name of a T.V. series, for some of us it has become almost a way of life. Back in the Winter of '87-'88, the new M.F.A. Sport 500 helicopter was acquired for a specific publishing project, which, subsequently was cancelled half way through, leaving us with the embarrassment of a half built chopper! So we finished it, flew it and decided to present it as a product review.

Now, of all people, I feel a real fraud writing about a whirlybird, having no real knowledge upon the subject and scant minutes of "flying" experience, often no more than inches above the ground. In the normal course of events, such a product assessment would have been carried out by Dave Day, our helicopter specialist, but like I said at the start, these days "normal" is not a word that I would use to describe the manner in which I earn my living.

So - just what do you get for £120? - or less if you shop around. Well M.F.A., for a start, are not newcomers to the game and this is not their first foray into the helicopter business.

Chris Baker is a competent designer, having many ideas of his own, and is not renowned for "following the pack" if he feels the direction is in any way contrary to his own thoughts. This led him to consider closely the whole market spectrum and ask whether there was still room, in this modern day and age, for a fixed pitch helicopter.

Some might say that the introduction of such



**MFA Sport 500
built by Mark
Littlewood and
described by
Ian Peacock**

a model at this time would put the helicopter world back ten years. Well maybe so - there is often more than one point of view to any subject. The counter argument is cost. To the novice less sure of whether helicopters are going to be his full time "thing" the lower cost may well give him a feel for the subject first. Both arguments hold water and, I, for one, would not like to come down on one side of the fence or the other (Painful exercises - sitting on fences - ED).

I've been close to this model now for in excess of nine months and can confidently say that it is practical, and does work and that's as

far as I'm going to commit myself. So let's go take a look at the SPORT 500 and see just what comes out of the box!

If you've ever built a model from M.F.A. you will not be at all surprised at the completeness of the SPORT 500, nothing is omitted save for adhesive, a lick of paint on the cockpit, and, of course, radio and engine. Maybe the only area of nit-picking in this area is the constant reference to thread-locking compound and the fact that you supply your own! As the model is aimed at the first time buyer, it might have been prudent to include a small bottle.

Again, because of the first timer, the instruction booklet is particularly comprehensive and very clear, with excellent step-by-step photographs. A full set of Allen keys is supplied, but it is assumed that as the builder has to provide his own electric starter, he provides a starting belt too.

Pin-up photographs

It is strongly advised that the builder reads this booklet several times before commencing assembly, taking particular notice of the additional notes on the addendum sheet and marking the pages on the main booklet where these notes become relevant.

In fact we unstapled the booklet so that we could remove the picture section and pin it to the workshop wall. This saves repeatedly turning pages back and forth when referring to the photos whilst reading the text.

The parts layout photograph was particularly helpful as it enabled us lesser mortals to figure out what each part was.

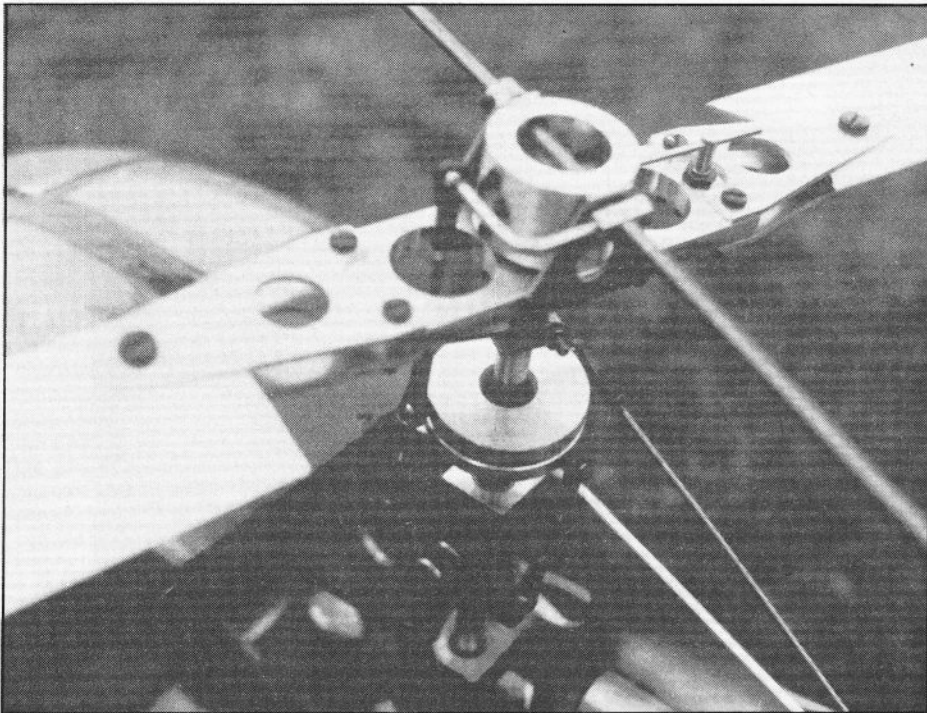
In general terms, it was difficult to fault the manufacture of the parts, each piece seeming to be more than adequate for the job. Trivial points are worth looking out for though, and

Comprehensive setting-up, i.e. blades balanced and tracking correctly, engine properly aligned and all nuts and bolts secured, is essential for successful flight. Mark takes a look at the blade tracking, left.



on our example (albeit an early sample!) the main chassis had one or two quite sharp burrs, as did one or two of the holes in the undercarriage legs.

We found no real difficulty in the assembly which is really only a sophisticated "Meccano" job. However it does pay to be meticulous and to follow the instructions to the letter. We didn't in one or two minor areas and reaped the obvious rewards of trouble later.



In each case, where trouble was encountered, it was nearly always traced back to "not doing what we were told". En route we discovered that the split pin hole through the clutch drum and input shaft were fractionally out of line and a quick "twiddle" with a reamer was needed. Similarly the main rotor head, part H3, the holes were not on the centre line and slight attention was needed to line everything up. There were plenty of M2 and M3 nuts and bolts, in fact we were worried about the number left over and went back over the assembly to check that we hadn't missed anything out. We hadn't, but the re-check was worthwhile, for it uncovered a couple of errors in the assembly. There were, however, a couple of M4 screws and nuts missing!

I cannot stress too strongly this point of repeatedly going over the instructions and the double checking of each step. Nor can I over emphasise the use of thread locking compound - a factor to prove our undoing during early flights.

One small point that really did throw us (bearing in mind that we did not really know what we were doing!) was that of photo No. 46 on page 14 which shows the pitch checking on the main rotor blades. It threw us because it shows the main rotor set up to rotate "in the opposite direction". Don't be alarmed, this is just a case of the Gremlins creeping in, for during development both clockwise and counter clockwise rotating heads were tried. Through unfortunate accident, the photo of the wrong model crept in

here and as Chris was quick to point out, we weren't the first to bring it to his attention. The gauge and the technique for using it as shown are right, just the rotation is wrong!

An area where we thought we might have to do a bit of work proved unnecessary. Blade balancing is an essential for the correct working of a helicopter and both main and tail rotors balanced perfectly without any attention from us.

Good accessibility

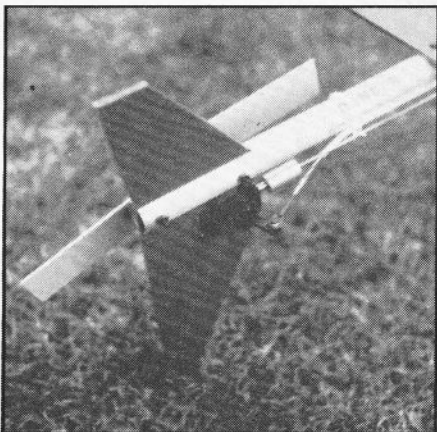
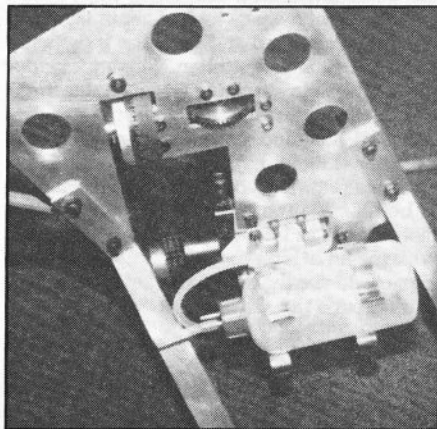
The basic ironmongery of the Sport 500 seems well thought out and in some cases, particularly simple. Everything can be "got at" and there are no nasty inaccessible areas. The motor mounts simply and keeps adequately cool without any need for special heat sinks. The silencer is a bit close to the ground and could be a bit vulnerable if a sudden "arrival" were to feature in the flight pattern. As we were using an OS FSR 40, we elected, by kind co-operation of our colleagues at Irvine Engines, to fit a "dustbin" style of silencer and this was much more satisfactory. In fact, so much so that we have elected to use this style of silencer on several other models currently "in the pipeline". If you've got problems with silencers that poke out too far, then maybe you should look at this range of Irvine products - they do seem to solve a lot of problems!

By today's standards, it is a little strange to have printed plywood rather than the die cut sheets with which we have all become more accustomed. However, there is some sort of perverse pleasure obtained by going back to the hand fret-saw and "doing it all the hard way". It doesn't take long and as an added bonus the printing extends to notes on which servo fits where and even goes as far as marking the servo tray "front" so even I couldn't get it wrong!

Despite what appears to be masses of linkages and bell cranks, the radio installation is, in fact, quite painless, everything going where it is meant to - and all of the push rods linking up correctly. The use of a gyro and a 1200 mAh pack had already been recommended and were fitted into the space allotted to it without trouble. The entire radio bay is covered with a large, two part, transparent canopy which only requires trimming to size and sticking together. This is one of those many areas where attention to the instructions "just slipped" and Mark rang up panic-stricken when epoxy adhesive did not appear to work. Cyano is favourite here, particularly the POLY ZAP variety. A suitable alternative, better known, probably in plastic kit circles, is to fuse the two sides together with a suitable plastic solvent. Many of the proprietary plastic kit "liquid glues" will work and so, in fact, will industrial solvents such as trichloroethylene, which was what we wound up using ourselves.

So, the whole model goes together with no real serious effort and few problem areas. If anything, the worst problems were of our own making and only goes once more to point out how important it is to stick rigidly to the instructions.

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Although a fixed pitch rotor head, the '500' performed well and should give the novice helicopter flyer both satisfaction and a good idea of whether they will enjoy this form of R/C flying - all at a reasonable cost.

No setting up horrors

Horrendous stories of "setting up" model helicopters can be heard over the odd pint or two at most model club meetings. We had few and most of them were of our own making. The first few test hops, in a moderate breeze showed a tendency to want to lift off backwards which was simply corrected by a combination of moving the C of G forwards and increasing the forward cyclic pitch. After this we had no real trimming difficulties. The Gyro stops the tail from swinging as you open up the throttle completely (remember this is a fixed pitch machine where lift generation only comes from rotor and, therefore, more engine speed) to such an extent that you can virtually forget rudder control during those first hesitant hops. Cyclic control is very woolly - well that's how I found it but I don't have much with which to make comparisons.

It seems, to a degree, much like the novices rudder/elevator fixed wing trainers, that need a lot of stick movement to start a turn but little to hold the turn. (Sometimes even needing a touch of opposite to ease the turn off once it has been initiated). Watching others flying the Sport 500 seems to confirm that lots of stick, in the cyclic plane, is needed to move it from a satisfactory hover, a point that bears out the advertising claims for the stability of the hover, and not usually associated with fixed pitch machines (I'm told!) Of the various difficulties encountered during flying most were of our own making. Our OS 40 is not in its first flush of youth and whilst it is adequate for



Contents are very complete and attractively presented.

most work, helicopters do need a better motor.

We intend to re-engine our example with a newer OS 45 FSR, particularly in the light of fitting the scale fuselage and adding a bit more weight. Other hassles concerned nuts and bolts vibrating loose (not enough thread lock) but precious little else. Of course, like most beginners, we have broken the odd rotor blade here and there (both 'mains' and tail) seriously bent the undercarriage (which seems quite happy to be bent back again) and put the odd crack or two into the canopy. Despite which, it is still flying (and Peacock is still learning! - ED).

So at the end of the day we have to admit that, any criticism levelled at the budget price is unjustified. True there were a couple of small anomalies here and there but it *does* all go together properly - and probably a great deal easier and more true if you don't rush it and follow the instructions closely.

True, the fixed pitch design is a "poor

sister" to the fully collective device. However as the Sport 500 really works and is well below the price of many other helicopters, it seems to be an excellent example of the "good old British compromise". Such a compromise does not skip the quality. The entire model is ball raced, no phosphor bronze or plastic bearings. The entire chassis and undercarriage is from aviation grade alloy, in fact nothing "mechanical" seems to have been skipped to keep the price down, resulting in a British piece of model engineering that seems well able to live up to its promise.

Specification

Fuselage length	42in.
Rotor blade diameter	41in.
Tail rotor diameter	8 7/16in.
Weight (inc. gyro and 1200 mAh nicad)	7 lbs.
Undercarriage track	11 3/4in.
Radio	4-8 channel (4 function Sanwa)
Engine	0.40 - 0.45 cu.in. two stroke - (we would recommend that you use a good 40 or a 45 for preference).
Part No.	736 - Sport 500
Price	£119.95
Part No.	737 - Scale Hughes 500E conversion kit £49.95

Like all M.F.A. kits, the Sport 500 should be available in just about every local model shop. However if yours doesn't have one contact M.F.A. direct at M.F.A., The Mill, Mill Lane, Worth, Deal, Kent CT14 0PA (Tel: 0304-612734) who will certainly be happy to point you in the right direction. Please don't forget to enclose SAE with all written enquiries!