PURSUING THE Sport IN THE Sport 500

MFA' Sport 500 gets 'breathed on' in the interests of science.

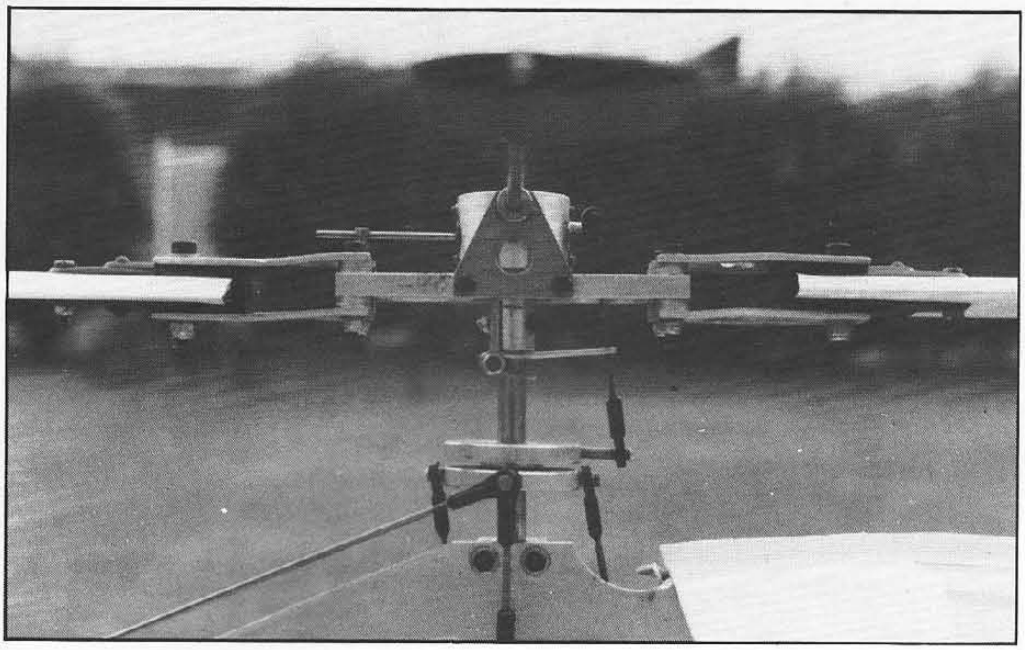
As one who learned to fly with a fixed pitch helicopter — some would say the hard way, but that's debatable — it's only natural that the introduction last year of the MFA Sport 500 should start to stir fond memories. It was quite some time before I got hands on experience with this model but when I did it was certainly a memorable one. A new club member arrived at the flying field one Sunday morning with a well built example of this model and commenced to set about the task of hovering his pride and joy. Considering his somewhat brief rotory wing experience — this was his second time out — he was having a very successful day, that is until someone suggested that I should have a look at his model with a view to making it even easier to fly, after putting my influence on it. After a careful perusal of the model and a few questions — more to find out something of the pilot than the model — we refilled the tank, started the engine and carried the model out to the starting area. The 500 was put into the hover and juggled about untidily until I had familiarised myself with the different technique peculiar to fixed pitch flying. I soon got the hang of it and turned to the owner for further instructions. He seemed pleased so far and encouraged me to explore the limits of the models ability. It was a breezy day, so after an exploritary left hand pirouette I left the hover and flew upwind — well upwind — prior to doing a wide left hand circuit. This was followed by a right hand circuit, which is where I found the tail rotor power was far from equal left and right, viewed from above my figure 8 must have looked like a cottage loaf. My intention then was to land and check the tail rotor linkage for binding or assymetric neutral, but as I made my descent, at about 30 feet, the engine stopped, the model tumbled to the ground like a pheasant that had had a sportsmans lunch. I was tempted to explain to my friend that had we got collective pitch I could have landed the model without damage, but then I realised the only good in that would be to save face on my part and even worse it may have discouraged him. So rather sheepishly I walked over to the model offering all sorts of excuses and apologies — which he ignored — only to find nothing worse than a bent undercarriage. Incredible as it might sound, within 30 minutes the model, flying again in the hands of a very happy owner with a precautionary richer setting on the needle valve.

After flying another example of this model — one that didn't have assymetric tail power — the obvious dawned on me. This model had been designed for beginners and the setting up instructions were tailored to suit. After speaking to some 'experienced' fliers that had flown the model, it became clear that they thought it a bit mickey mouse. Added to which I had spoken with others who thought it may be fine for beginners but wouldn't be much fun for anything else.

It was about this time that I rose to the challenge. "Too late" said the DG, "our review model has gone to Clive Thompson, he's doing it from a beginners point of view". After chatting about this to Mike Tomalin in Galaxy Models of Norwich — my local — he very kindly offered to loan me one of the Sport 500 kits he had on his shelf, on the understanding that he would get it back one day.

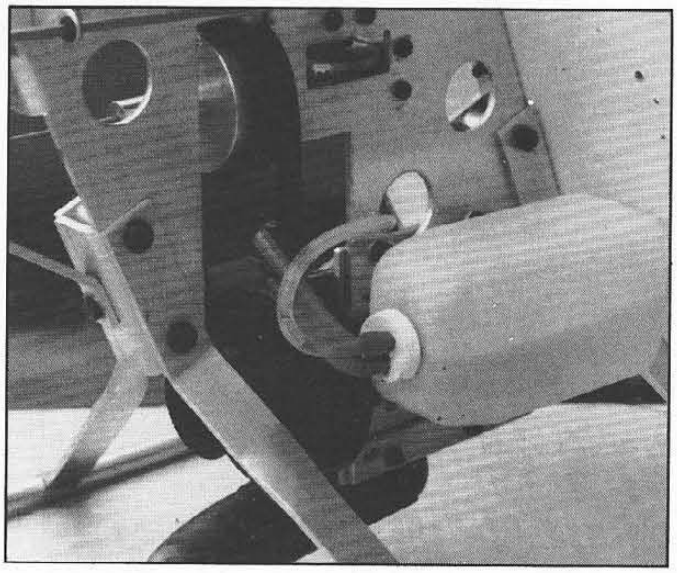
My intentions were to make the model more agile without losing too much stability and in doing this to stay within the bounds of kitchen table engineering and keep the costs of this 'tune-up' to not many pennies. I also wanted to fly the model on a standard 4/5 function aero radio outfit, but allowed myself the luxury of high quality .40 size motor and an equally good quality tail rotor gyro stabiliser.

As I built the kit up, I experienced none of the problems

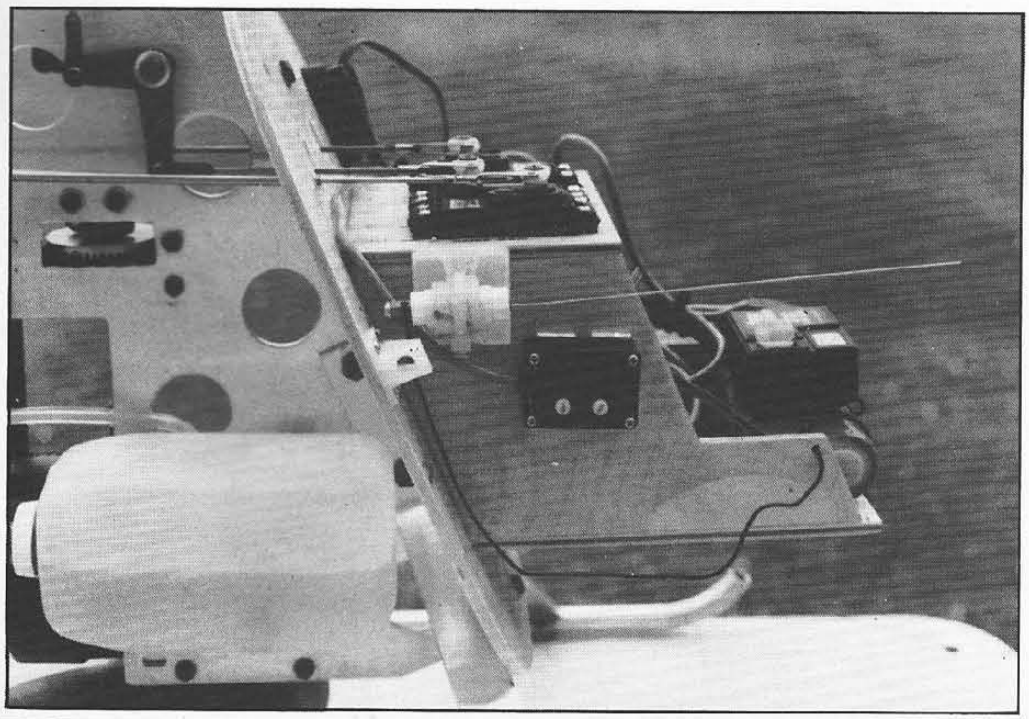


Heads mods include reinforcement to blade roots and extended lever on swashplate upper ring.

that Galaxy's other customers had complained about, but in fairness, they were all beginners and having built one or two myself, I was aware of any possible pitfalls which could lead to consequent later aggravation. I had already got a good feel of the model in it's original form, so I put some of my ideas straight into the first build. It has to be said that a lot of my ideas proved to be a waste of time. MFA know what



Bigger tank, not necessary but useful when you're enjoying yourself. All aluminium parts fitted perfectly (as did everything in the kit) no need for reworking.



they are doing and that is to make a deliberately docile model with a slow rotor speed for ease of flying and durability. It's the slow rotor speed which makes it unexciting and changing the gear ratio to increase this is the one thing that has made the biggest improvement in the models performance. I had in my spares box, a larger engine pully made by Jim Morley. It was originally designed for Morley owners who wanted to use 4-stroke engines which operate at much lower speeds, so the larger drive pully brought the rotor back to normal (JD and I used these larger pullies with 2-stroke engines but that's another story). I now had a model with a relatively high rotor speed but with a reasonable engine speed (not screaming). Because of this higher speed, I decided it would be safer to strengthen the root fixing of the main rotor blades. In order to stay within the bounds of the aforementioned kitchen table engineering limits I opted for some moulded blade cuffs — Mr. Morley again — which offered double bolt fixing whilst still retaining a lead/lag hinge, a feature that can not only add to the smooth running of things but also allows the blades to fold back without damage should the model tip on its side when it is on the ground. To cater for the extra root thickness, I shimmed out the metal blade holders with thick steel washers.

The next modification was to improve the tail rotor pitch change push rod. I dispensed with the original bowden cable and fitted in its place a piano wire and plastic tube system which travels in a straight line from the servo to the bellcrank, using stand-off mounts to achieve this, one on the rear boom mounting bolts and one underneath the horizontal stabiliser.

After the first flight I made another change which would improve the cyclic response. I

Lots of room in the radio bay, no need for micro equipment. Check ABC whip aerial, if it will work in a model with unlubricated metal to metal gears, it'll work in anything.

Finished and ready to go, looks really cute.

extended the ball on the swashplate upper ring. This amplifies the control movement from the swashplate to the flybar control arm and makes the cyclic response much more lively. The model now had a nice feel in that the cyclic and tail response were well balanced and quite powerful. One suprising — but nice — characteristic is the straight line stability which is quite incredible, after coming out of a steep dive at high speed there is no tendancy to zoom after levelling out.

I have changed the blades, first to a symetrical type which did nothing to improve matters and then back to a flat bottom section, but this time longer ones from the Morley factory again. These improved the climb rate considerably without spoiling anything else.

One other change I made was fitting a larger tank. This didn't make flying any better, but it extended the pleasure.

I have flown the model extensively over the last few weeks and have become very attached to it. I don't feel I have improved the model as a basic trainer by making these changes, in fact I recommend a beginner should build it as per instructions — except for the tail rotor push rod — as it is more stable and forgiving in that condition. What I've done only extends the versatility of the model to make it attractive to the more advanced flier, something which MFA could well do at a later date.

The Sport 500 is incredible value for money in my opinion and MFA have achieved a high factor of quality whilst maintaining a very economical price, a claim not too many manufacturers can make. This economy is also reflected in the price of spare parts, some of which are listed below.

Main blades	£6.95
Tail blades	£1.95
Canopy	£7.90
Main shaft	£1.73
Tail boom	£5.95
U/C skids and struts	£11.00
Side frame (only 1 req.)	£10.95
Main gear (crownwheel)	£6.90

Aerobatics are possible. Reversals are easy with a smooth and predictable exit. I have done a barrel roll but don't recommend it and I'm sure it would loop but I have not got round to it yet (no pun intended).

It only remains for me to say thank you to Galaxy Models for loaning me the kit for this review, I hope they enjoy flying it as much as I have. With the onset of those balmy summer evenings, I'm truly sorry to see this one go. □