A great little character. It's size belies it's performance and it always impresses fliers who have not seen it before.

GMP CRICKET REVIEW

Martin Briggs reviews GMP's original entry-level helicopter.

If you look at GMP's latest publicity and advertising material, you might be surprised to see in the centre spot is the little Cricket. You might be surprised but I'm not. It was John Goreham's first attempt (and success) in the model helicopter manufacturing business and after flying one myself and being able to appreciate its qualities, it's easy to recognise that he might see it as his favourite pet.

Apart from its obvious application as an inexpensive trainer it is versatile enough to please even the expert, providing he has the necessary skills required to fly a fixed pitch helicopter (not difficult just different).

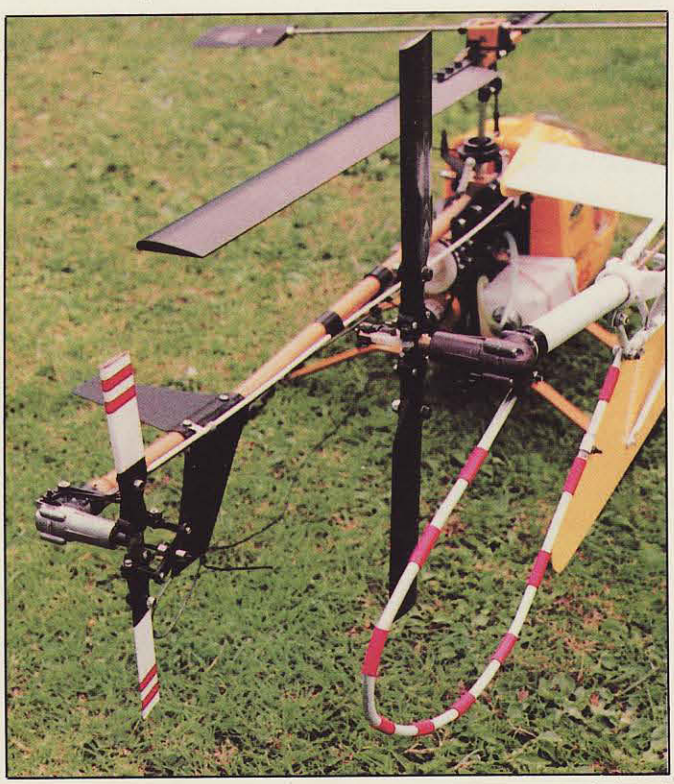
It's ideal as a trainer because it is small and bounceable — when fitted with a trainer undercarriage — which can be floats or canes and whiffle balls, both types are available from GMP stockists.

As a sport/aerobatic model it is only restricted by the obvious. Being a fixed pitch model it cannot autorotate or do aerobatic manoeuvres that require negative pitch inputs. However in the hands of an experienced pilot it will do loops, rolls, reversals cuban 8's (just) and 540 stall turns, etc. The performance/Pound (or Dollar) ratio is probably one of the best available.

The Kit

This is possibly the easiest to build kit that this writer has encountered. Made easier by the following:

1. Step by step instructions covering every last nut and bolt.
2. Pre-assembled main rotor head and tailrotor gearbox.
3. Preformed linkages.
4. Die-cut woodwork and main/tail blades that need no sanding or shaping.
5. Transmission that is self-aligning (including the clutch) and the engine mounts are adjustable for the different engines in the recommended range.
6. All parts are so well made that it added to the pleasure of building.



The Cricket is dwarfed by MB's 47G but photo shows that they both feature the same tail rotor gearbox.

The Build

The best way to build the Cricket is as per instructions. That is how I did it and found no need to deviate from that. I won't repeat what GMP say but I'll briefly run through the sequence of assembly.

After about 90 minutes of nut and bolt work the results started to look like a flying machine. The transmission was running freely, the engine was mounted and the drive belt was tensioned, the u/c was bolted on, the tail boom and tail rotor gearbox were in place with the drive shaft and boom supports, the swashplate was put on as were the tail fins. Sit back and enjoy a cup of coffee.

Next the woodwork was assembled with thick ZAP followed by a trial fit of the servos, then the assembly was taken off the chassis for painting along with the main and tail blades. Then the canopy halves were trimmed and stuck together with a clear impact adhesive and painted. All of these items were painted with Solarlac, applied with an old Humbrol airbrush. Solarlac is fuel proof and easy to spray when thinned 50/50 and is less likely to 'run' than other types of paint. It covers well, one coat on a clear canopy for a good finish. It also dries fairly quickly but it is best left overnight to avoid finger marking.

When the paint was dry, assembly recommenced with bolting on the radio tray, fitting

the servos, receiver, gyro, ni-cad and switch, then fitting the most pre-made control linkages, followed by the tank and its plumbing and the canopy which is held on with a rubber band, in the same way as Schluter do it. Finally the blades were covered, balanced and fitted to finish the construction off.

Believe it or not this is a Cricket with GMP's own Hughes 300 conversion kit. This model was built by Willie Patterson from Dundee. What you might call 'Suitcase Scale'.

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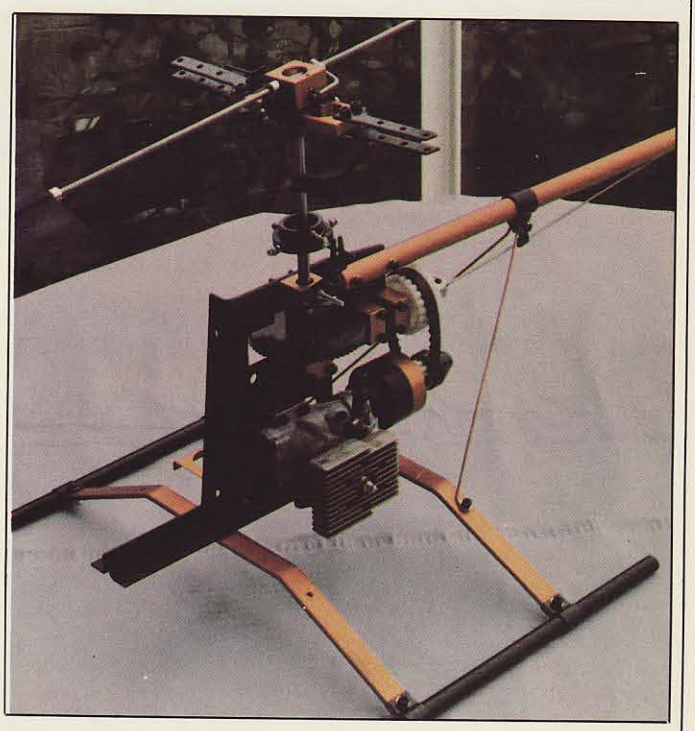
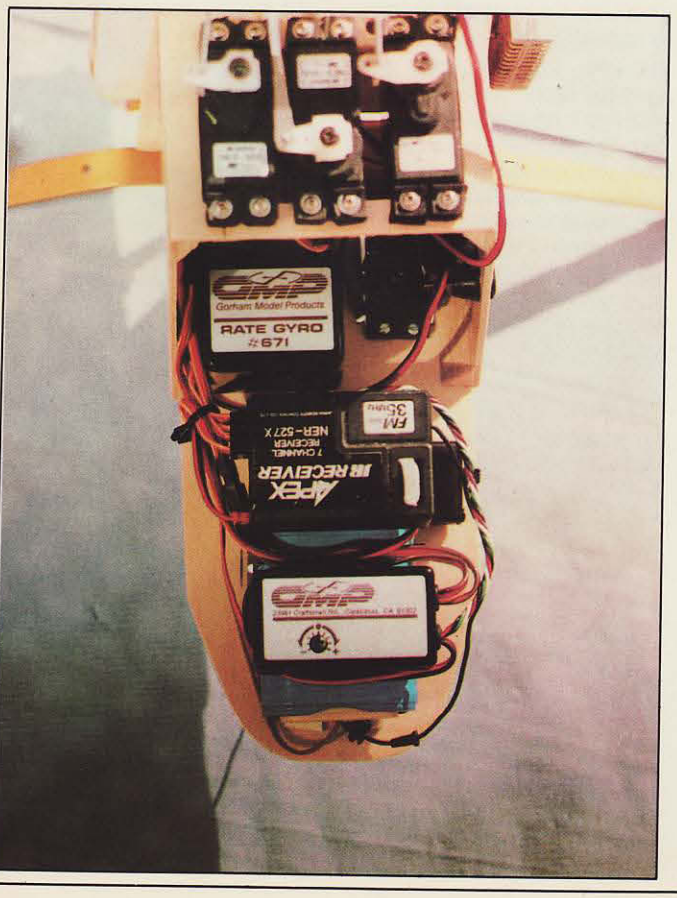
With a 1200 Ma ni-cad pack, the Cricket balanced just ahead of the mainshaft (ideal). After checking right through that everything was running free and easy (and the right way), I sat back and had another coffee. I didn't check the actual building time but I would guess at about 4 hours.

Changes

Well I put a washer under every nut and bolt as I do with any model I build but the only real alteration (well there had to be one) was a substitute for the tailrotor pitch control snake. I don't know why but nothing I could do would persuade the stock item to run freely so instead I fitted a Graupner plastic snake and all was well.





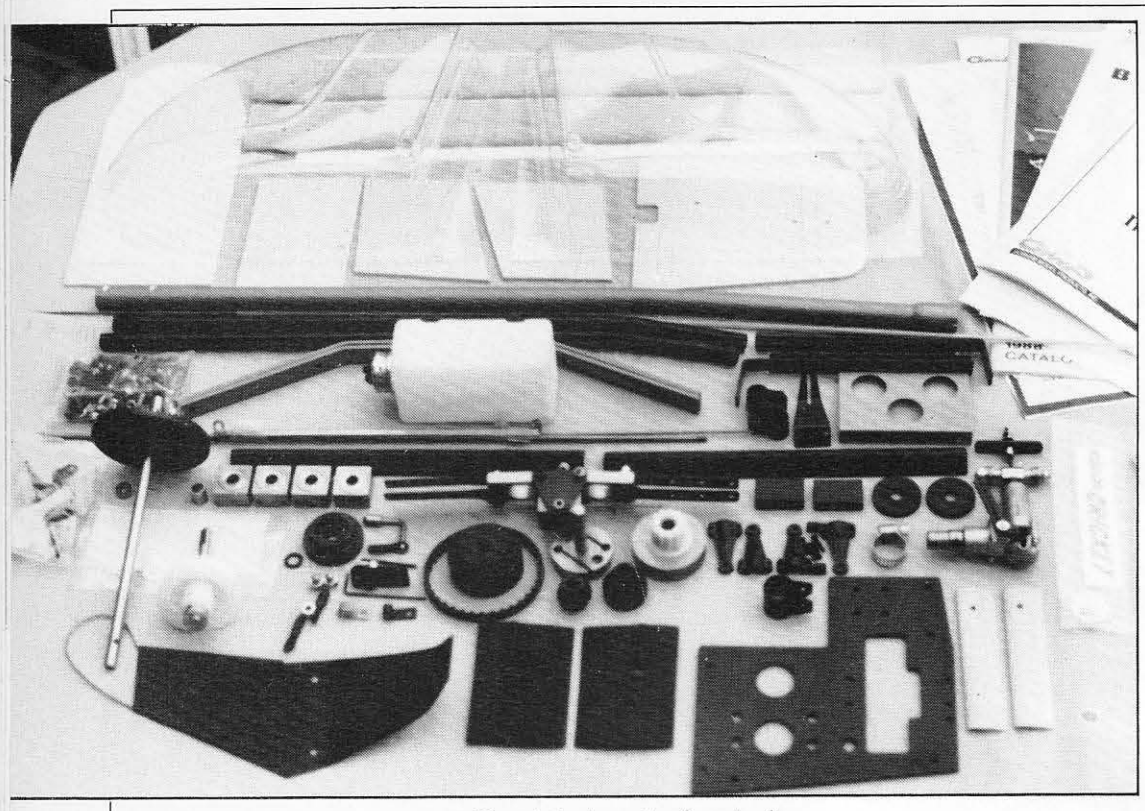
The radio bay is small but more than adequate if things are carefully laid out. Author depends on high quality servo tape for mounting the bits that you don't screw down but a beginner would be advised to add a few rubber bands for added security.

Test Flight

Disaster! Believe me I had checked everything twice. Before going out to the field with a new model it always gets a test hop on the lawn. This time, just as I got into the hover the fore/aft servo decided to go to sleep. I've been flying

90 minutes after starting we have the major part of a model helicopter. Inside that clutch-bell there is a one piece clutch like on the bigger GMP models and the engine is fitted with a cone start, also like the bigger ones.

The day was ideal (flat calm) and the Cricket lifted off at about half throttle with the advised pitch setting, the tracking was slightly adrift but easily corrected by twisting the blades mounts with finger pressure only and I straight away felt comfortable and confident enough to fly around in circuits and I soon began to enjoy the lively and predictable reponse



Complete layout of parts including a comprehensive building and setting up pack. All parts are of high quality and require no re-working. Also included is an information sheet on how to join the AMA. Maybe for the UK we should see something for the SMAE or the BMFA as it is now.

of this little beauty.

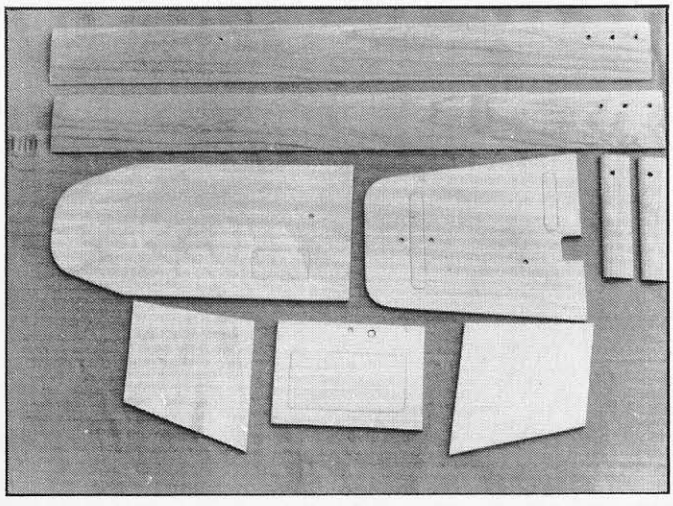
Throttle response is good (though a lot of credit for that must go to the engine), cyclic response is very good with a better than average feel for a fixed pitch model. But the nicest surprise was the tail rotor response, though again, I shouldn't have been surprised. Because it has the same tail rotor gearbox as Hirobo's big Bell 47G (which it also handles comfortably). I had also fitted a GMP gyro — sent to us by Radioactive of Upminster and the southern agents for GMP — which made the tail even sweeter. Just for once I had a model helicopter which would circle nose-in both ways (left or right) equally well and you cannot ask for more than that.

Because of my initial problem (the servo failure) and the imminent copydate for this issue, the flying aspect of this review is based on only a few hours experience. However I'm already very attached to our Cricket and feel I will get many hours of pleasure from it, so I'll probably write at greater length in a future issue. Though I might add, the last outing with the Cricket was a trip to the Retford club field, to meet Jim Fox for a demo' of the Vario Products he is not importing, but that's another story. Unfortunately the day was very breezy and I thought I wouldn't be able to enjoy flying the Cricket. How wrong can you be. Even I underestimated its capabilty. As the wind was so strong I was hovering on about one third throttle but because of the relatively high rotor speed, control was still within comfortable limits. A few pirouettes proved that hovering wasn't going to be much fun so it looked like the time had come to show its real colours.

A downwind climbout followed by a rapid upwind run lined me up perfectly for a loop, I eased the stick back and over she went into a nice round but tight loop, with no tendency to zoom at the exit. Just to prove to the audience that it was no fluke I did several more and on the following flight I got some nice rolls (and down wind) and some reversals, all tidy and very readable.

None of the assembled group had seen a Cricket fly before but all admitted being impressed and all of them had a closer look to see what made it tick. Get it? Sorry about that last line.

Wood parts are beautifully die-cut (even the servo cut-outs) apart from painting, it's a coffee table project.

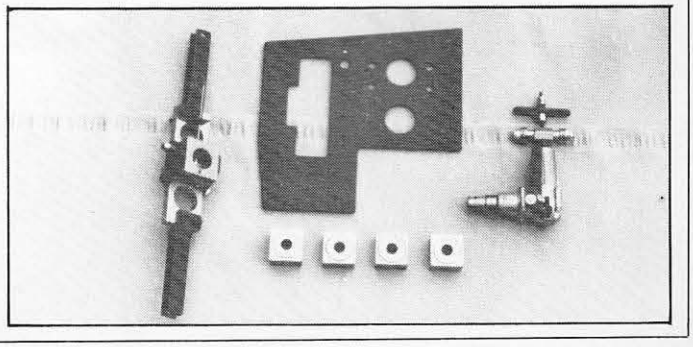


Summarising

With a kit of this quality, if it is built properly, success and pleasure are virtually guaranteed. The following advice (if heeded) would extend that guarantee:

1. Do use a good radio, it flies pefectly well on a standard aero set.
2. Do use a good gyro. At £59 the GMP gyro has to be one of the best for value/performance.
3. Do use a good motor from one of the major manufacturers.
4. Do use at least 10% nitro fuel preferably with synthetic oil. I know it's more expensive but it lasts for ages with these small engines and they are far more reliable with the increased nitro-methane content.

Main rotor head and tail rotor gearbox come pre-assembled as shown here with the ballraced bearing blocks which are used for the main transmission. Also shown is the central chassis plate which feels like it's made from bullet proof material.



A Post Script TO THE CRICKET REVIEW

All you wanted to know about fixed pitch flying but couldn't because no one would tell you. Now we are.

I'm writing the Cricket review just after the second issue went into the shops and by now one or two readers have taken me to task over the review of the MFA Sport 500. It seems that while they liked the 500 review they were disappointed that having pointed out the obvious, ie. that it is a fixed pitch model that requires a slightly different flying technique, I didn't try to explain what that difference was.

So, not wanting to disappoint loyal readers any further this seems like a good opportunity to pen what I feel is my interpretation of the subject.

First of all let's take a look at the tail rotor response. This should be the same on most helicopters that are set up correctly. Some are better than others but that's not determined by whether it is a fixed pitch model or not.

Next we will look at height control. With collective pitch the vertical or up and down movement is effected by increasing the angle of both blades together or collectively, hence collective pitch. With a fixed pitch model helicopter the blades are semi-permanently set at an angle that gives a steady hover relating to half throttle and approximately half power of the engine. So we can see that when in the hover, by closing the throttle partially we will reduce the rotor speed and since the blades are set at a fixed pitch we will now get reduced lift resulting in a loss of height. Conversely, opening the throttle will increase the rotor speed which will increase lift and the model will climb. Inertial forces dictate that there will be some delay in response but one can soon come to terms with that and anticipation is the name of the game.

By using a smaller rotor with the same pitch but by increasing the rotor speed to restore the lift we can get a more substantial lift change whilst maintaining disc authority.

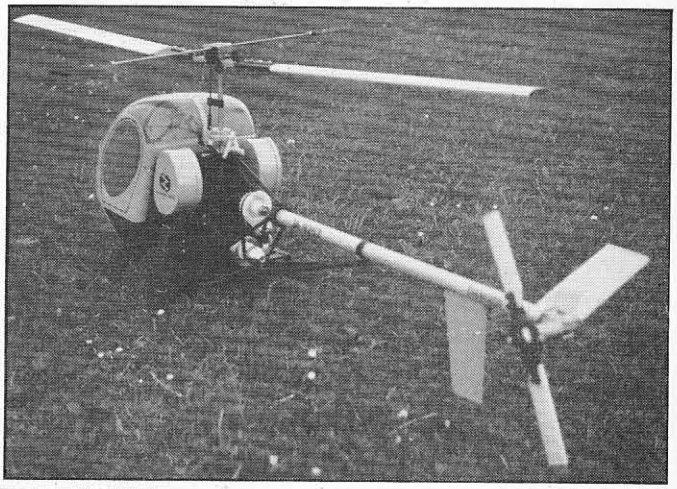
Cyclic response is also affected by changes in rotor speed. As the speed decays so does the power of the steering paddles and larger stick movements are required. Again a higher base (hover) rotor speed improves this situation since height can be lost while still maintaining higher head speed. While a steady hover can be easy to attain in flat calm conditions, it gets proportionally more difficult as wind speed (and turbulence if ground is uneven) increases. This is where careful design shows up. By using a lifting section blade with a good lift/speed ratio and a low gear ratio reduction, John Goreham has found the best compromise for a fixed pitch helicopter. It was my previous experience with modifying Micro/Mould Larks that led me to the decision to lower the gear ratio on the Sport 500, I had come to the same conclusion as GMP.

We all know don't we (?) that forward speed gives us a bonus of free lift for no extra power input. This is called translational lift, so called because it first comes into effect when translating from the hover into forward flight. This bonus has the same effect on fixed pitch models as it does on collective pitch types. However on our fixed pitch models this translational lift becomes a problem when reverting back to the hover from forward flight. This problem worsens as the wind speed increases because we cannot dump lift by reducing pitch we can only do it by reducing the rotor speed. And there is a limit to how far you can go with that. The lower limit of rotor speed is determined by the need to maintain authority of control and too low a speed reduces the ability of the Hiller control system (the usual type of control on a fixed pitch model) to maintain stability of the rotor disc. The first indication that you are getting near to the ragged edge is a tendency for the model to pitch up sharply.

So to recap it's simply a matter of anticipating required height control and getting used to the variable cyclic response as the head speed changes. See, there's nothing to it.

In the design, it's all down to a careful balance of rotor speed, flybar length, paddle weight and area. So with a good design and a basic understanding of fixed pitch flying, a lot of pleasure can be had for very little money.

One last thing. A fixed pitch model helicopter should be treated like any other type. It puzzles me when I see pilots with all their suspect servos and gyros and varnished lumps chiseled out of the front of planes, all relegated to their fixed pitch 'copter. It's not just daft it's irresponsible and a recipe for disaster or disappointment at the very least. Go to it. □



Fixed pitch models can be scale as well. Here's two more views of Willie Patterson's GMP Cricket/Hughes 300. Ain't she cute.