



HOVERING ABOUT

TOWARDS THE END of last season, Warren Bailey asked me if I knew what the problems with tandem rotors were, and why there didn't seem to have been a successful model of the *Chinook* type. It so happened that I had already given the subject quite a lot of thought, and had wondered the same thing myself. Obviously there were engineering problems, but the only real puzzle was the control, what happens to the full size isn't necessarily good enough for a model, would it be flyable?

The outcome was a combined effort, Warren doing the building, I supplied the parts, so as you might expect, we have two *Morley 2c* chassis doing a 'push-me-pull-you' act with an *OS 60* in the middle. After test flights Warren's splendid bridge was boxed in with a light alloy shell with Joe Le Bot mini Jet Ranger nose at the front.

The prototype *Morley Chinook* was born!

Its initial public appearance was also its first 'in-body' flight. We were not disappointed, the body helped directional stability just that necessary little bit in forward flight and the model provided a refreshing and stately spectacle — most of the time. It's not exactly vice free though.

More on this model later.

Dates for your Diary

Writing in the chill of January, it is nice to look forward to the three events known to date. In chronological order they are: first the Elmbridge Club Symposium at Sandown Park on 10th and 11th May, I know a lot of people are making special efforts with helicopters this year so this must be worth a visit.

The second, also at Sandown Park but not really to do with models, is the European helicopter show and British helicopter championships. To be held on 21-22 June — see press release further on. Third, is the Skybirds Modelclub meeting in Belgium on 28-29 June. They claim it can surely be compared with leading continental competitions and kindly sent the following words:

Eurocup Vilvoorde Contest for R/C Helicopters

In 1979 the Skybirds organised for the second time the Eurocup Vilvoorde, an international contest for R/C Helicopters. Again the leading pilots of Europe gathered to do their best, unfortunately no U.K. participants turned up, although their supporters told us



they were on their way. Nobody showed up even after delaying the start of the competition for an hour, and since we had not heard of any ferry sinking, we concluded that they had returned home or were lost somewhere in Belgium. The programme to be flown consisted of some very difficult manoeuvres, and this is perhaps why only very experienced pilots participated, with few newcomers. From the beginning it became apparent that Ewalt Heim was likely to be the winner, his very precise flying of his self-developed and made helicopter were unbeatable in every task he took part in. The remaining competitors had to fight for the lower places — and try they did because this time an innovation in helicopter contests, there were not only cups to win but cash as well.

During the two contest days we were lucky with the weather, and only a little morning fog worried us. The rest of the two days were sunny which attracted many spectators, over 2,000 in the two days. The sun must also have had a positive effect on human behaviour because during the whole contest

all competitors and even the judges helped each other, as demonstrated by the following example:

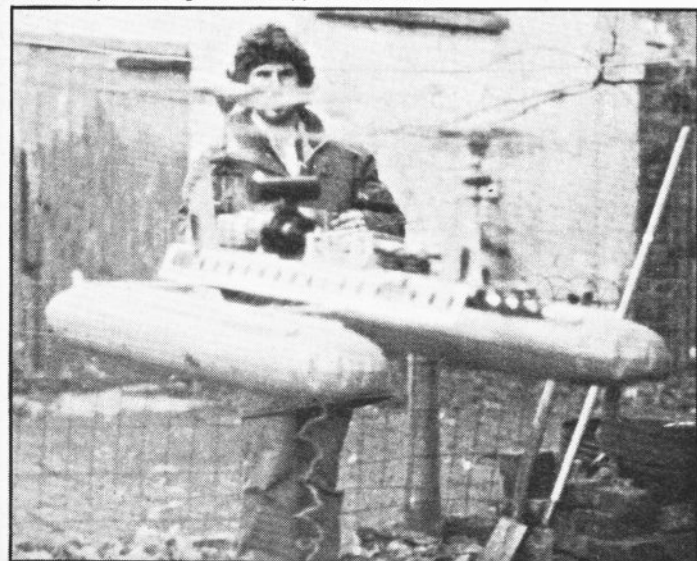
A Dutch competitor, Wim Snitjer, crashed on his first flight, and after examining the wreckage he decided to rebuild the model. With the help of fellow competitors and the Dutch judge, M. Schoemacker, he succeeded and on the Sunday afternoon was able to demonstrate what he could do with a helicopter; once again proving that aeromodellers, although opponents in competition, help each other to improve their performance. This has been one of our objectives in the Eurocup contests, to promote international exchange of ideas and friendship.

The 1980 contest will have an A category (expert) and a B category (advanced) with some easier tasks. Again there will be some nice awards and commemorative medals for all participants.

Category A: 1st 20,000 BF + Vilvoorde Trophy and Nitor Trophy
2nd 10,000 BF + Cup
3rd 5,000 BF + Cup
Category B: 1st 10,000 BF + Cup
5,000 BF + Cup
3rd 2,500 BF + Cup
(20,000 Belgium Francs is about £300).

This year's Eurocup Vilvoorde takes place on 28-29th June. A more detailed brochure describing the competition, how to get to our field at Vilvoorde and other information is being prepared and will be available from the following address:

The Skybirds, p/a Ivan Lefebvre,
Faviolalaan 19, B-2959, Zemst, Belgium.
It would be nice to see an event like that supported by some U.K. contestants. How



Ewalt Heim, winner of the 1979 Vilvoorde meeting, hovers his scratch-built Jet Ranger. Note the four-blade rotor head. Right: Tandem rotor model flies successfully (see text). Left: Warren Bailey confidently hovers the model in the back yard in test bed form.



R/C HELICOPTER NEWS FROM JIM MORLEY

about it? H.A. will act as introductory agent for anyone interested in joining up with others for a team. Wish it was my kind of flying (Category S).

Championships

The organisers of the annual British Helicopter Championships have invited leading RC Model Helicopter pilots to demonstrate their skills at the 1980 British Helicopter Championships which are to be held, for the first time in view of the general public, at Sandown Park, Esher, Surrey on 21st and 22nd June 1980.

The British Helicopter Championships, instituted in 1972, are conducted under the sporting code of the Federation Aviation International (FAI) and the competition is open to helicopter pilots of British nationality including those of the Armed Forces.

It consists of events aimed at testing the pilots skill in precision flying, such as those required in rescue operations at the precise positioning of airborne loads. All the events are conducted within the spectator arena at heights below 20ft. The chief judge at the 1978 event was H.R.H. Prince of Wales, and trophies for 1980 will be presented by a distinguished personage.

The first three pilots will be considered for representation in the British team which will compete for the World Helicopter Championship to be held in Warsaw in 1981. An exhibition, with the theme "The Helicopter in Service to the Public" will be staged during the two days of the event, which will present a unique opportunity for R/C Helicopter model engineers to watch the full-size equivalents in action — and see some models.

Other public attractions will include helicopter flights and rescue demonstrations by the Armed Services.

Enough said — see you there.

I was delighted to hear something from the BRCHA. A pity it isn't better news, there seem to be problems, it reads:

"To BRCHA Members"

Here we are in 1980, and nothing has been heard from the association for a long time, well, let's start afresh. All members who wish to rejoin please send an SAE to me with your 1979 card and your membership will be renewed free of charge.

The committee now wishes to resign, if you wish to be involved please say at the time of your membership renewal. If there are sufficient members wanting to help, an election will be held for the new committee. If not, a new committee will be appointed. The Association does need new blood and ideas, so if you do have anything to contribute please come forward.

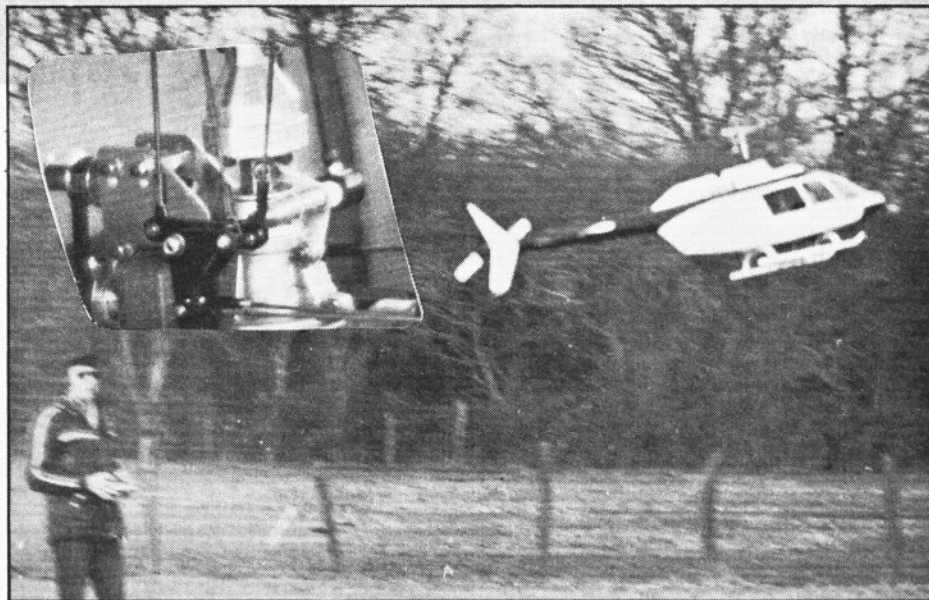
As yet we haven't anything planned for the 1980 season, if you have a suitable flying site and would like to hold a 'fly-in' please let me know.

Replies to:

K. A. Ford,
2 Regents Court, Warpole Road,
Staines, Middlesex.

Model Engineer Exhibition 1980

There wasn't a single helicopter in the model aircraft section. This surprises me because if any aircraft is entitled to be at a model engineering exhibition it's a helicopter. We really ought to try, unfortunately I knew the Chinook wouldn't be ready or there would have been one. As it was the flag was flown by Jim Davis showing the magnificent Hirobo "Lama" with others



Ken Ford: "auto-rotates" long enough for the tail rotor to stop on his Hirobo Jet Ranger. Inset: the free-wheel unit and additional belt-drive to make the tail rotor more sensitive.

in their range which he is now selling, and a Model Flight Accessories Hughes 500 on the Como Drill stand of all places. An associated company I understand.

My interest was attracted in the model aircraft section however by a magnificent vertical take-off fixed-wing model. Four swivelling ducted fans — one at each corner — in a sort of Harrier. No doubt this model will get well deserved coverage elsewhere. I shall be surprised to hear that it actually hovers, I'd love to be wrong though, and what is the equivalent of tail rotor?

Be careful when using the string on tail training method

Mr. T. M. Thomas, in India (yes they do it out there too!) writes to say that his model is now a pile of sticks. His anchor man left the model in free flight at 15', trailing the string to the horizon, while he went in the opposite direction. Tom lost control as he dived for the car, a swarm of hornets disturbed by the noise, had attacked them, scoring about ten hits on each. He'll be trying again though. Good luck.

Finally, if Ole Aavestrud, from Norway will send me an address that works I will reply to his letter.

Japanese Helicopter Kits

Reader Roy Foster has recently completed not just one, but two Hirobo Falcon helicopters; the Mk1, an orthodox collective pitch head model, and the Mk11 a refined version with free-wheel main rotor. As the products of this Japanese manufacturer are now becoming more widely available in the UK it seems opportune to include his comments and experience with the Falcon in the form of a mini *Hovering About* Review. Roy writes:

Helicopter kits never cease to amaze, how do they pack such big models into small boxes. The *Hirobo Falcon*, a collective pitch machine with a 52-inch rotor disc, for use with a 40/45 engine and four function R/C, is no exception.

The Bell type rotor head is made of a cast alloy and goes together with ease, the direct control provides a very responsive model.

The tail rotor comes complete with only the blade holders and pitch control mechanism to assemble. The tail rotor blades are pivoted with the aid of thrust bearings to take up the centrifugal force which, while offering smooth control of the pitch angle, also provides a valuable safety factor. The tail rotor is

Above: Vago Nordigian with his Ecuriel helicopter built for the *Superman Two* film. This model is fitted with Schluter 222 mechanics with or without the tailboom. Graupner 212 or earlier Schluter mechanics will also fit into the fuselage.





Left and right: Roy Foster's Hirobo Falcon MkII on the ground and in the air. High quality mechanics and good flying performance from this model.



driven by helical gears which reduce wear and risk of stripping teeth in a crash.

Clutch, flywheel and cooling fan slip straight onto the *Webra 40* without problems, the whole assembly fits easily without any alteration to the chassis. The slots provided allow for various size crank-cases and for the engine to be moved up or down to align with the clutch housing.

The tail and head blades are made of excellent quality wood, pre-drilled and shaped, no covering is provided so I used the standard sticky backed plastic material and balanced the blades in the usual manner. Installing the radio is a straight-forward operation, it was however, necessary to raise the cyclic servo to allow the mixing bar for the tail rotor to travel its full extent, this is easily achieved by using two blocks of $\frac{1}{2}$ in. sq. wood.

The only deviation from the plan I made, was to mount the swash plate stabilising rod onto a strip of aluminium to the rear of the chassis, as opposed to the glass-fibre cabin. This achieves two things, firstly more rigidity, and secondly it would not be necessary to remove it every time I wanted to take off the cabin.

Painting is easy, there being only the fin, tail and the glass-fibre cabin to paint. The CG came out according to plan, about $\frac{1}{2}$ in. in front of the main shaft. So off to the flying field. At this stage I had two worries, firstly that the undercarriage was too narrow, and secondly the size of the model and power available — but in for a penny as the saying goes.

On an early September day, with quite a breeze, the Falcon was started, a nudge of the throttle and the blades started rotating. At a healthy distance I waited for bits to drop off. After a tank full of fuel nothing did, so scratching my head in disbelief I checked grub screws and nuts. Refilled and started, I

placed the *Falcon* in front of me, on applying more throttle the *Falcon* left the ground; following this, trimming was undertaken. In the hover the *Falcon* is stable, the tail response to throttle changes were docile and predictable.

My worries about the narrow undercarriage were unfounded as the *Falcon* is a very controllable helicopter. The *Webra 40* provided plenty of power for normal flying. The maximum pitch angle was kept to within the limits on the plan so as not to load the engine excessively and cause it to overheat. The overall response of the *Falcon* is excellent, she goes where you point her. The kit is comprehensive and provides unparalleled value for money, and should prove to be the ideal helicopter for the beginner (famous last words) the more experienced pilot would get many hours of fun.

Falcon MkII

Following the success of the Mkl *Falcon* the manufacturer decided to offer an aerobatic version of this model helicopter and at the same time incorporate further developments. The model had the same design layout, the only differences are: (a) free-wheel main gear; (b) wash-out system for stabilizer bar; (c) stronger undercarriage; (d) lighter and larger stabilizer blades; (e) ready-painted G.R.P. canopy with clear windshield part.

Flying

An *Enya 0.40 XF* engine was fitted to the model with *Graupner* tuned pipe. This meant that some lead weight had to be added to the nose. There was no let up in the weather for several weekends and finally when the opportunity arose I rushed to the field to rest fly this latest model.

One tank full of fuel was used to break in

the engine with main blades removed and the engine set very rich. After that the helicopter was checked, blades fitted, and engine adjusted slightly, leaner but still fairly rich. The extra weight of nose ballast and the tuned pipe meant that lift-off took place at near max engine R.P.M. (still running rich). Immediately after lift-off it was realised this machine was very responsive and the movements of all cyclic and tail pitch controls were halved by throwing in all the rate switches.

After the tail rotor pitch was adjusted and the right mixing was introduced between throttle and tail the MkII was in its element. The stabilizer with its variable control wash-out made response very smooth and infinitely precise. The positive controls enabled me to perform several circuits in strong wind conditions with a touch of tail control when turning into the wind.

Conclusion

The *Falcon MkII* is not the model for a novice but should provide unlimited excitement for the average pilot and those wishing to attempt aerobatics. As for me I shall be practising aerobatic manoeuvres, now that I have a model at a price that I can afford with reasonably priced spare parts.

Washout Control

Thanks to the introduction of the range of Hirobo helicopters several people have asked me what on earth that is. I was very glad they did because I didn't know either. A call to Dave Nieman put that right, and reminded me that I had met the term in connection with the Kavan Jetranger. I wrote it off then, as a peculiarity of translation from German to English. I still think it's a funny name for what I understand to be an interaction preventing device between collective and cyclic controls. Is the term ever used in full-size terminology?



Left: beautifully finished Hirobo Bell UH1B photographed on the Jim Davis Models stand at the M.E. Exhibition. Right: Falcon MkII mechanics also seen at Jim Davis Models, this is the same model as Roy Foster describes in the text.

