

# HOVERING ABOUT with Jim Morley



## Slough Autumn Fly-in

It really is very simple to organise a magnificent helicopter fly-in. All you need is a flying club like the one at Slough on October 18 and give them their head. Of course, there are little things to do like buying the awards and arranging publicity etc. Joking apart, the Slough club did very well, they even managed brilliant weather to go with the ideal site at Upton Court Park, Slough.

The major ingredients were very well arranged, namely transmitter control. Course marshalling and competitor administration (John had used his computer to print out the entry forms), commentary by DB Sound and independent judges.

This last was arranged in 1980, who better to judge if a model is performing well in a scale event than full-size helicopter pilots? And, how better to fiddle an award than to enter a replica of the helicopter that two of them fly!

The date for this year's event was brought forward, so that the afternoon was considerably longer than last year. A scale flight contest was followed by the Static Concours and a Novelty event, with time for 'off-the-peg' exuberance afterwards.

Obviously this year there were a lot of people much better able to fly and the scale flight was just a little more demanding, but still of only roughly two and a half minutes' duration. Again the judges were looking for the right behaviour and even if a model was flown very well, if its flight pattern didn't resemble that of its full-size counterpart it

*Below; Skittles were put on boxes to add ground effect complication to the flying. Mick Harris' Kalt Baronette.*



could not score too well. Even sound was taken into account, but still the major criticism was that of flying too fast with too high a rotor speed.

It wasn't a good day for autorotation, several of the best models were spoiled attempting this party piece, but if some of the experts came unstuck that way, Len Mount was well on form, winning all three events outright with three different models. Results of the day were as follows:

### Scale Flight

- 1st L. Mount, *Kalt 'Baron 50 Jet Ranger.'*
- 2nd D. Nieman, *Hirobo 'Gazelle'*
- 3rd W. Bayley, *Morley 2c 'Bell 47g'*
- 4th N. Brackley, *Kalt 'Bell 222'*

### Concours

- 1st L. Mount, *Kalt 'Bell 222'*
- 2nd J. Morley, *Morley 1/7 scale 'Bell 47g'*
- 3rd J. Barrow, *Hirobo 'Gazelle'*

### Novelty

- 1st L. Mount, *Schluter 'SX 81'*
- 2nd D. Nieman, *Hirobo 'Falcon 808'*
- 3rd A. Paris, *Hirobo 'Lama'*

### Best Kalt

- G. Richardson, *Kalt 'Baron 50'*

### Best Morley

- A. Hopkins, *Morley 2c*

*Slough MFC hosted the Christmas fly in sponsored by Morley Helicopters and Slough Radio Control Models.*

Of great interest, to me especially, was John Barrow's *Kalt 'Baron'* with three bladed rotor head from *Morley* parts. No, he wasn't trying for best *Kalt* and best *Morley* with one model, the rotor head was an experiment to eventually make his 'Gazelle' even more scale. The three bladed *Kalt* flew very well and was flown in the novelty event. The head is simply three half assemblies of the *Morley* AT head riveted between two triangular plates at the centre. It isn't really quite that easy though, and John says it has very different flying characteristics to the head with a flybar. Blade tip weight is approximately 2½oz and rotor speed is kept down to about 850rpm. It has yet to be proved on a heavier model.

Other interesting and/or unusual items were Michael Sheppard's *Autogyro*, my *Magnum* four-stroke 2c, Andy Hopkins' *MFA 'Hughes 500'* with *Morley* AT collective pitch rotor head and Dave Nieman was flying a 'Hughes 300' with 20cc petrol engine power, though I'm told that it will be Southern Helicopters (John Heaton) who may be importing this model.

The novelty event was made a little different by having the skittles both on the ground and upon boxes of different heights, a little point which can make a big difference because of ground effect. The tapes on the hurdles needed repair quite frequently, a couple of models collected a length on their rotors, making flight a bit erratic but without disaster.

The daylight continued for sufficient time for a mass of models to exercise after the prizegiving, rounding off an excellent Fly-for-Fun. Thanks again Slough Club.

### Rotating wing gliders again

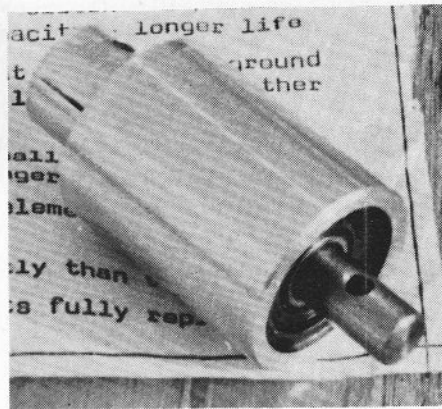
Since my predictions in the April *Hovering About* that we would be seeing more autogyros, the most significant thing for a long time has happened in the full sized world. From Spain, the place where it all started, a new four-seater *Autogyro* with four blade



*Left: John Barrow holds his Hirobo Gazelle, 3rd in the Concours.*



Left: John Barrows 3 bladed rotor head on the Kalt Baron (see text for details).



Right: Bolt on 'goodies' for helicopters are a new area of Model Manufacturing. This free-wheel device is available from Model Land and Southern Helicopters.

Below: Magnum 90 4-Stroke powered Morley.

rotor and pusher prop between twin tail booms has emerged.

Aeronautical Industrial SA (AISA) are currently testing the machine and hope for applications such as traffic surveillance etc. It is a purposeful looking job, a first photograph of which appeared in the November/December issue of International Helicopter magazine.

On the model side, a number of people have been lured into this branch but Michael Sheppard, from Dyfed, is out to become a specialist. He has sent me the photo of his spin up device fitted to the Kalt Robin. He also brought it to the Slough meeting (leaving home at 4.30 in the morning) and caused a lot of interest.

The spin-up device is servo operated: a cam forces the friction wheel against the spinner disc which drives through a reduction gear and flexible shaft to the crown wheel and pinion at the bottom of the mast. He claims that it is much better than the usual flex drive taken from an u/c wheel which would need a lot of forward taxiing to get rotor speed up. It is not a new idea, of course, but I believe he is putting it into limited production as a bolt-on kit which will be interesting. I mentioned to him my brilliant idea(!) of having it operated by the weight of the autogyro on the undercarriage (the u/c leg as a clutch lever) but it was pointed out that you then couldn't use it for airborne 'spin-ups' when necessary and it would be better to stick to having the extra servo. This may be true, I didn't know you could do that. I have enough trouble flying helicopters with a tail rotor. Anyway, it's a stage nearer to the ideal of being able to do a 'jump' take-off, though surely you'd need collective pitch for that. Has anyone gone that far?

### Diary dates

Sandown Park Symposium, by Elmbridge Model Club, May 15/16, no doubt all the usual helicopter exhibitors again.

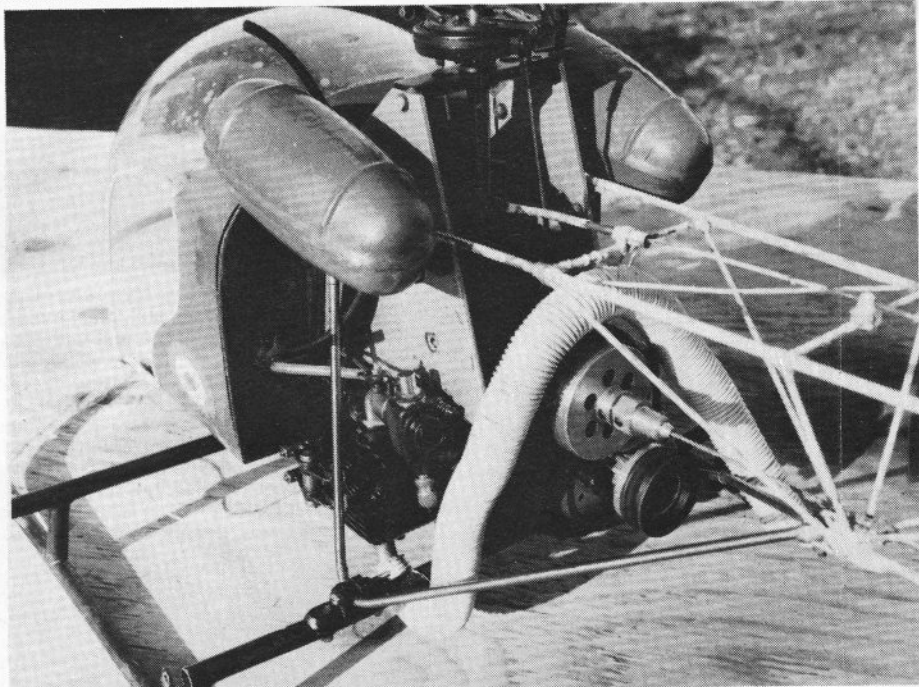
I also hear that the *Colt Aviation Helicopter Fair* is again happening at Cheltenham Race Course on June 19 and that there will also be plenty of helicopter activity during the week 19 to 25, Middle Wallop, I think.

### Freewheel unit

There is now available a very well-made freewheel autorotation unit at only £21.50. I have the one in the photograph but I have to admit I haven't tried it in the 2c yet, it isn't all that easy due to the proximity to the mast of all the collective operating mechanism though I have no doubt it will work. I gather Len Bliss at Model Land and John Heaton at Southern Helicopters have them in stock.

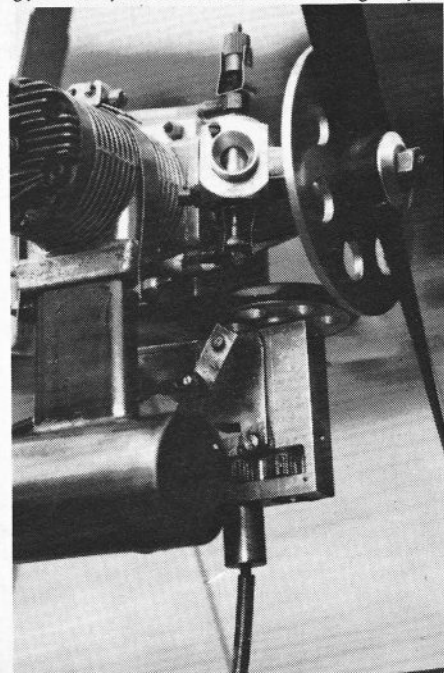
### Magnum four-stroke

I mentioned in the last *Hovering About* about fitting one of these 15cc engines in a helicopter as an experiment. Progress so far has convinced me that I must make a 1/7 scale *Bell 47g* for it. In the 2c it is obviously a bit twitchy because of its massive torque compared with the usual 40 two stroke though the BHP output is very similar.



Normally the 2c has a 14 tooth pulley on the motor to a 32 tooth pulley at the clutch before the 4:1 ratio gearbox on the mast. An overall ratio of just over 9:1. I found best results using an 18 tooth pulley in place of the 14 tooth engine pulley, an overall ratio of just over 7:1, and the clutch needed beefing up because of the 3,500 pulses per minute replacing the 9,500 from the two stroke. The noise is interesting, but far too loud without a silencer, even though on fixed wing they are often able to do so, on a helicopter which is closer and working harder I suppose, something is necessary.

Below: Michael Sheppard developed this Autogyro run-up attachment seen at Slough Fly-in.



I tried a piece of new highly flexible aluminium conduit as seen in the photograph. The sound effect was fabulous, though after a few minutes at hover the pipe melted! I now know that it is only suitable as an extension to a silencer, which is what I have it for. It makes excellent scale looking exhaust systems.

The motor obviously has bags of power for the 9½lb model though I have yet to find it as easy to operate reliably like the two strokes are these days. In a helicopter, the occasional misfire has a dramatic effect because the torque is so much more. There are two things I can do which should improve this. The first on advice from *Magnum* engines, is to add methanol to the fuel to effectively reduce the oil content to nearer eight per cent, and the second, not so easy in the 2c where because the engine compartment is so full the fuel tank has to go in the cabin, in a shorter fuel line and better tank mounting. This last will have to wait for the rebuild, but it's definitely been a worthwhile experiment and a bigger model is obviously a practical project, and it will sound right.

### An interesting experiment

being conducted on a *Bell 206B*, full size, is the 'Ring fin.' This is a flat ring around a cut down rail rotor, it is squared off at the back and extends to mount the tail skid, the normal fin and skid is left off. The idea is to mix the airflows with the top vortices to augment the tail rotor anti-torque thrust, it is said to improve control and reduce noise level by 6dba.

Wonder if it will catch on? A sort of *Bell 'Gazelle.'*

Happy Hovering About to you all in 1982.