

HOVERING ABOUT

WITH JIM MORLEY

I AM NO THEORIST but I like to find practical solutions to puzzling problems. If you were to ask me the age-old question: "how many beans make five?" I would give you credit for not wanting the obvious answer and suggest; "two, one male and one female" or, more seriously "one, divided by a fifth of the number of beans on a plant plus a few months." So it was with the brain teaser in the August issue about the Dangling Man. If I wasn't meant to be drawn into it the author shouldn't have used a helicopter!

Like the five beans question, the answer to the problem was in the question. Transfer from the hoist of the helicopter completing perfect circles relative to the wind, into the car driven by the skilful driver could take place at any time on the trajectory because the car driver was skilful. The word skilful changes to miraculous when the helicopter airspeed is, or falls below the wind speed, but the question is fair and I pondered a while.

Of course, if the helicopter hoist is fitted with a swivel bearing then the DM would stay facing the same direction all the time and it could be that transfer would be best when facing the same way as the car (once in every circle). On the other hand, if no swivel is fitted, the DM is rotating, and there will be a precessing force so he will start to rock.

More significantly, the DM is being accelerated and decelerated. Well, the question said that car was, and you have to believe that accelerometers in the car and DM would read the same, since the skilful driver keeps the car in the same place, so on the end of a hoist the DM is going to swing fore and aft relative to the helicopter.

Newtons law that says a body will stay where it is or go where it's going unless acted upon by an external force is relative to space, not the earth, the wind, the car, helicopter or anything else.

Similarly then, accelerometers in the helicopter would have the same readout, except for swing on the DM and bumps on the car. A sensible DM would insist on a V cable from front and back of the helicopter and James Garner driving the car in case wind-speed and airspeed were equal (only T.V's Rockford Files followers will understand that last bit).

Anyway, we now know that the helicopter is accelerating and decelerating relative to space as it flies round and to do so the pilot will have to do something to cause it to do so (Newtons Law). Also a plane pilot flying above the helicopter would have to change power and trim.

Now make the plane a radio-controlled one, put an aircraft carrier in a canal steaming steadily downwind at windspeed, and the radio pilot on it is going to notice his plane needs power and trim changes.

It is all very well to talk about drift compensation only, the word drift implies minor differences. It's all a question of relativity. You can read Einstein on that, I've said enough. Were you as confused by the September DM answer as the DMO, HDO and SWO?

Try thinking about helicopter blade tip paths and forces!

Bretons '83 The Eurocup

We in this country have been usually lucky with plenty of beautiful flying weather this year. The weekend that the Bretons Model Flying Club chose for their upgraded event was the one that the summer ended.

As you should well have known the 5th International Radio Control Helicopter Competition was to be held at the meeting, the Eurocup '83. As a competition it may have been splendid but the crowds stayed away in their thousands. I turned up fully expecting the event to have been blown into a shambles by the gale force winds and intermittent rain. In fact the wind was so steady, with virtually no turbulence at the flying site, that the competition manoeuvres were completed to schedule.

A few of the continental competitors were unable to get there because of cancellation of ferries, hovercraft etc., but the end result on the Sunday anyway was that there seemed to be more continentals than nationals on the site. In fact for the two events, the F.A.I. and Sportsman competition, there were a total of 15 British entrants, 8 German, 7 French, 6 Belgians, 2 of Dutch, Finnish and Swiss, plus 1 Canadian and 1 Austrian.

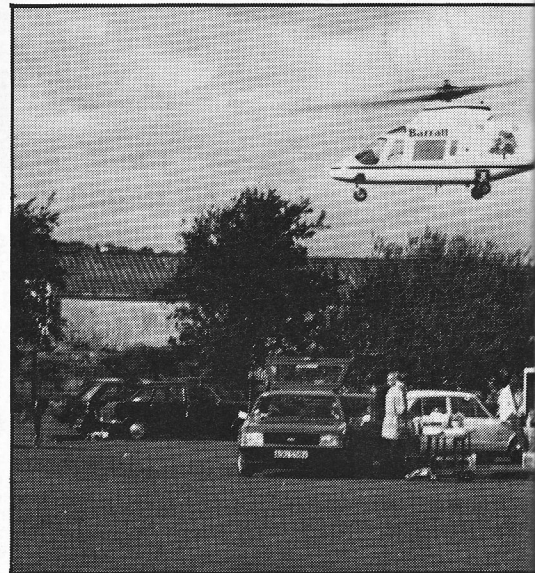
In the Sportsman class, K. Whiddett, England was 1st, J. Nevling, Germany 2nd and A. Heyche, Belgium 3rd.

The F.A.I. event had a bit of a hiccup when it was discovered that E. Heim of Germany had put the wrong blades on his model and had metal weights in them — banned by F.A.I. rules. Fortunately he was able to change them and even better his performance to win from J. Duport and F. De Proft second and third respectively, both from Belgium. Len Mount is to be congratulated on obtaining fourth place and being first Brit. in this very demanding competition.

Morley Collective 1983 Meeting

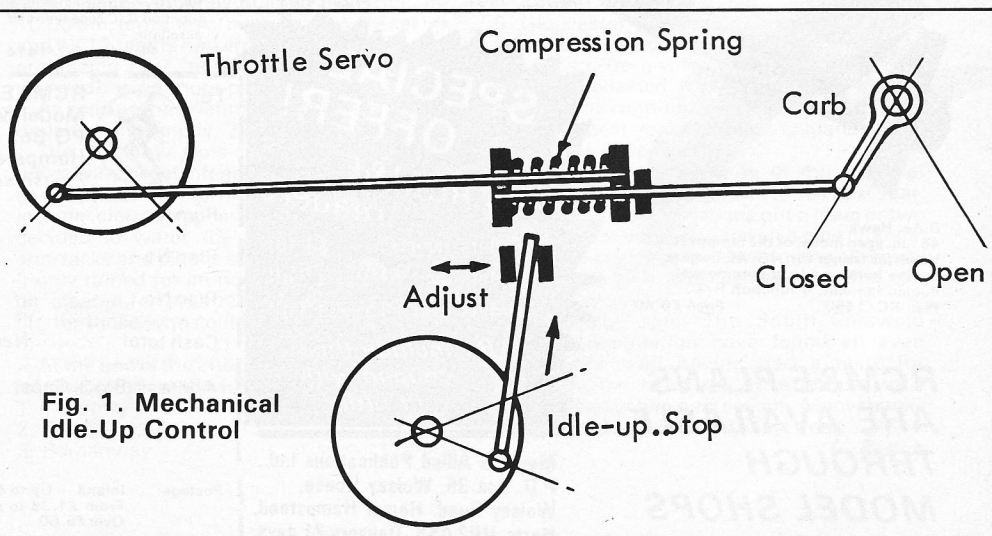
The first fly-in of this one-make society was held at Bristol. The principal idea was to have an enthusiasts meeting with lots of chat and no serious competition so that newcomers to the sport could get advice plus help and get used to the idea of flying at other than their usual field.

A novel feature was that the 'works team' was not to be eligible for the awards. This was undoubtedly very hard luck on my most



faithful supporters, but again the idea was to encourage new blood.

Also there was a rule of no more than one award to one person. This caused a few problems, for example, Trevor Butcher from Fawley was a strong contender for the 'Technical Innovation' award for his effort with the Enya 4-stroke in his 2C. This award actually went to Robert Kendal for his variations to a 1/7th Bell 47g using Mk3 parts and spark ignition (using petrol fuel in the Webra 61), although the latter was not fitted on the day. Trevor Butcher won the Concours trophy with his 'Lynx'.





Above: Andy Hopkins flew his Agusta 109 finished in Barrett livery at the Westland Lynx Garden Party held recently at Weston-Super-Mare. Left: John Ray is scratchbuilding a 'Scorpion'; the story so far is shown left. Power is thought to be by large two stroke petrol motor.



Top: Belgian chopper enthusiast Albert Heyche flew his 'Blue Thunder' model at the Bretons International. Above: impressive array of silverware awarded to the top competitors at the Bretons event.



whereby you flick a switch on the transmitter so that your motor servo doesn't go below that point at which it is set for hover. Above that point it follows the stick movement as normal, but by not allowing the motor to throttle back it keeps the rotor speed up in descent, thus you maintain better control and also it provides a more even torque in the hover so that tail rotor is easier.

Whereas there are ways of achieving this electronically on existing outfits if you are qualified to attempt that, there is a way of doing so mechanically on the model with an auxiliary channel.

The sketch should be self-explanatory, except that the 'stop' is set by noting where your transmitter stick is at hover, landing and stopping the motor, then moving the transmitter stick to noted position to see where the adjustment should be.

I haven't tried that myself yet, so you could be the first! Be careful, and let me know the results. Of course you could use the auxiliary servo as an adjustable idle up stop, but I have a feeling this may prove less manageable in practice.

The Nationals 1983

Unfortunately I am unable to go to as many meetings as I would like, but the Nationals this year was a good one to miss, only for the helicopter event I understand.

Due to a protest, the FAI competition was cancelled at the last minute. Without knowing the full facts I can say that my sympathy goes to the SMAE judges, after all they were the judges, whose word should be accepted as final, and it is a shame that an event of this importance has to be spoiled.

The scale event did take place however and was won by John Griffiths with his four-bladed 'Wessex' in Royal Flight Livery. I intend to photograph this model and present it to you in the next instalment.

Ouch!

A lady friend of mine was offered a ride in the co-pilots seat of a dual-control helicopter recently. Not having ever been up in one, in spite of having a positive affinity to the machines, she leapt at the chance. What she felt about the flight I'm not too sure, but the descent and landing approach was made with perhaps more exuberance than usual by the pilot and the lady felt she should hold onto something. The pilot leant across to her with the following request: "Would you mind letting go of the collective control please, I need it."

Or words to that effect anyway.

Scale flight award went to Gil Ransom, best 'Bell 47g' to Dave Watters and best 'Hughes 300' to Duncan MacGregor. The timed novelty event was won by Vince Kent and the best non-Morley award went to David Matthews for his Kalt petrol 'Baron'.

Since there was no other worthwhile contender and it was well deserved, a rule was broken to give Mike Young the crash of the day award when he lost control of his Mk3 'Hughes' doing consecutive rolls.

We were very lucky to have had reasonable weather when most of the country was getting a bit wet. I feel very gratified that

people drove from as far as Edinburgh, the east coasts, the west country and north of London for what was intended as a low-key event, but then as somebody said to me "there were at least twice as many models as at, so why not."

Idle Up

It's a funny thing how this feature has only just caught on, it has been about for some years on the sophisticated radio sets and either it hasn't been used or it's been used and not shouted about.

As mentioned in the last H.A. it is a device

SAFETY FIRST

By
Peter Miller

This month I have two serious problems to talk about, one affects vintage fliers and the other affects everyone.

On August 21st I was at the Vintage Day at Old Warden, on my first flight I had one or two hitches but no further trouble, however, a friend of mine was flying a very well tried model and on this occasion had no trouble until he did a low flypast, just as he was about to climb away with a left turn the model reared up, turned tightly to the right and crashed by the fence, by good luck it did not hit people or models. I noticed that my friend had been flying at the left end of the line and a quick check showed someone on the next channel at the right end of the line. Both sets

of equipment were good expensive makes of 35 MHz FM.

Later in the day as we walked back from the F/F area a very large model made a low pass and suddenly went full left and down right in front of the flight line. Although I was not able to check this, it looked like the same cause.

Now Vintage Day is a nice, low key affair and it would spoil it to have to book slots as on Scale Day but there is no doubt that the wide spread of Tx's and the use of adjacent channels is a potential hazard. Having thought about the problem and wishing to keep the 'fly when you want' system intact as far as possible, may I suggest that in future the simplest method would be to alternate

odd and even numbered channels every hour on the hour, a reversible board could be used and just turned each hour. A definite area as a 'Pilot Box' would also help but I am trying to avoid spoiling the feeling of the day . . . I shall be using UHF next year.

The second problem area this month concerns clevis's (clevis?). A recent crash was found to have been caused by an elevator clevis pulling off its rod. As the model had been flown quite a lot it was felt that possibly the threads had worn or the threaded portion of the clevis had somehow sprung open. Shortly after this accident I was installing some equipment in a model and had been fitting various clevis to rods, I had found one that I thought was a good fit as the clevis screwed on smoothly with no slop, it was only when I happened to knock the elevator and found that the servo was still at neutral that I realised that the threads were not the same, the remedy is obvious, don't mix clevis and rods up and if you are not sure and I mean completely sure that the threads match, do a very thorough test and by thorough I mean two pairs of pliers and all your strength, better to ruin a clevis than write off a model and anything it hits.