

# HOVERING ABOUT

by JIM MORLEY

I STATED some time ago that I thought helicopter pilots tended to be "loners." To be fair I think that perhaps this is a case of unselfish self-indulgence. In other words, a completely absorbing pastime that can be fitted into odd moments which aren't demanded by someone else. I think a lot of people find it so difficult, and many do not realise, how near they are to being able to give a fair account of themselves at a meeting nor how much they would benefit by attendance.

I have been sent a cutting (source unknown) by Harry Quek (Monster Bell Huey Cobra, *Hovering About*, four months ago) which states:

An airplane by its nature wants to fly, and if not interfered with too strongly by unusual events or by a deliberately incompetent pilot, it will fly. A helicopter does not want to fly. It is maintained in the air by a variety of forces and controls working in opposition to each other, and if there is any disturbance in this delicate balance the helicopter stops flying immediately and disastrously. There is no such thing as a gliding helicopter.

"This is why being a helicopter pilot is so different from being an airplane pilot, and why, in generality, airplane pilots are open, clear-eyed bouyant extroverts and helicopter pilots are brooders, introspective anticipators of trouble. They know that if something bad has not happened it is about to."

Harry Reasoner. Feb. 16, 1971

If you don't like some of that as too much of a home truth (if it is) you can console yourself with the fact that it was intended to apply to full-sized helicopter pilots. Anyway, at much the same time, I received a letter from a model pilot in New Zealand which shattered part of the above and who certainly was not in line for the "something bad."

He says that he has had his model for two years now, and continues:

"It is getting a bit tatty now and am intending to overhaul and rebuild some

parts of it, so require a few spares.

"I had a rather hair-raising 'fly away' with it a few months ago. I was just getting ready to take off when the Rx switch somehow vibrated loose and fell out of its bracket inside the cabin, the switch is operated by a piece of nylon fishing line passing thru its toggle, this must have caught on something and the radio was switched off. The servos must have lurched as they are old four wire ones, this gave about two thirds throttle and away she went, with me frantically wagging the Tx sticks and nothing happening. The chopper took off rotating at a couple of rpm, narrowly missing a parked Mini and the clubroom roof. It then climbed up to about 100 feet, quite stably spinning around; the engine then slowed down and the model descended gradually until it landed OK in long grass, the blades catching in this and tipping the model over on its side, the engine still churning away and clouds of smoke pouring from it, result — one burnt out clutch but no other damage at all, it was rather amazing to say the least."

An extraordinarily lucky escape you say, yes, but the amazing thing is that I know of another similar incident, where the aerial was snagged on lifting the model from the starting line to the take off point, pulling it out of the receiver but not away from the model, and so not noticed. With the transmitter very close the model lifted off in full control and was trimmed into hover. Forward cyclic was fed in and immediately the model flew out of range within feet. The dismayed flyer could only stand and watch it circle up and eventually into the cloud at several hundred feet, where the fuel ran out and the model dropped appearing as a rapidly enlarging blob until impact in the next field. Was it going faster than a run-away multi? I doubt it, and possibly the predictably of its trajectory would make it less of a hazard, but not much, and the fact that the model was easily repairable

and flying again in a week or so emphasises the luck of some.

The point of the above rambling is to show that ordinary flight of a helicopter doesn't have to be all that difficult, and that with careful preparation very little piloting is required, but it is this "careful preparation" which takes so much to achieve and what makes the models such an absorbing challenge.

## Readers' contributions

I have received a goodly number of tips on how readers have overcome failures or weaknesses in their particular models. While thanking these readers sincerely for their efforts, I feel that perhaps a remedy, using materials that come to their hands, on a model type owned only by a percentage of other readers is not of general enough interest. They have confirmed my knowledge that the scatter factor in fatigue failures is very broad, that crash damage is very unpredictable, and that helicopters are very often expected to do a lot more flying hours than a fixed wing model and initially put up with a lot more abuse. They also tend to feature very highly in the modeller's interest and not beloved by wives.

Reader J. Sidoli sent details of two of his ideas which are shown in Figs. 1 and 2.

## On two engines

Since the last "HA" the twin engined *Seaking* has flown. Awe inspiring is the description.

The two 40s have a common exhaust outlet and the noise, with a slight throb to it, is beyond the imagination. The model is big too, and unusual so far, and to retract the U/C quite a novelty. Unfortunately the five blade head still has problems, vibration and variable phase lag to name but two, so the model is flying on the standard collective pitch head with long blades. The two engines each have a drive belt and clutch onto a separate pinion on the crown-wheel. Four gearbox casings were utilised in

**Below: John Day flew this Morley 2c fitted with an aluminium cabin at the Aero-modeller Old Warden Scale Day.**

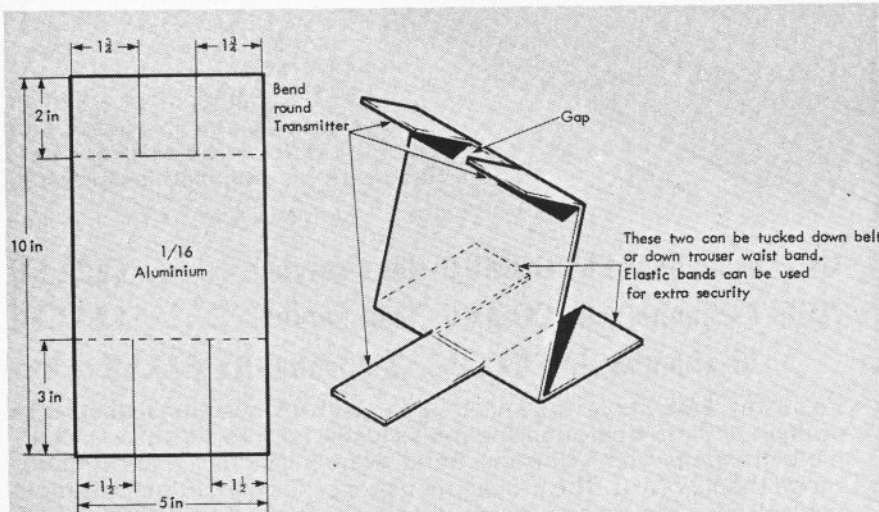
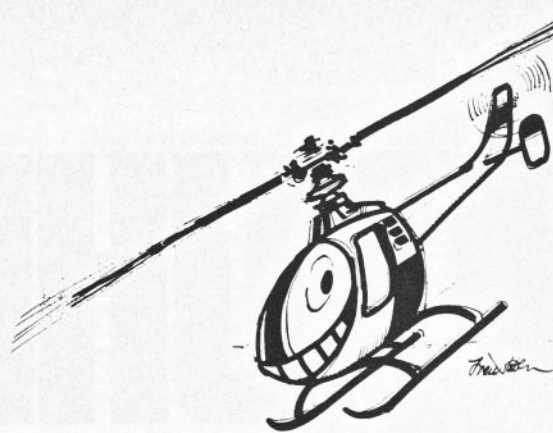
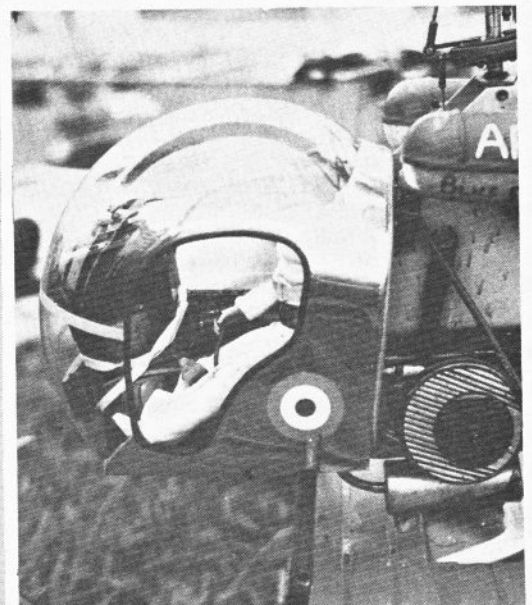
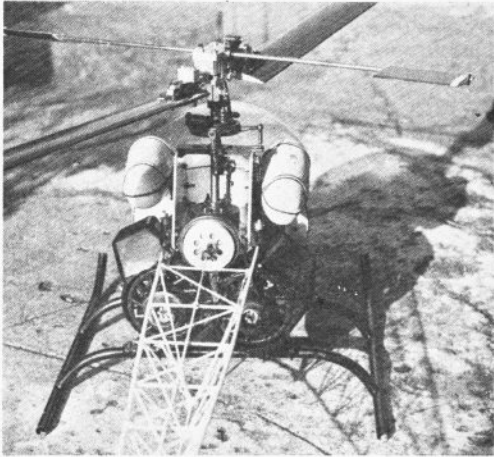


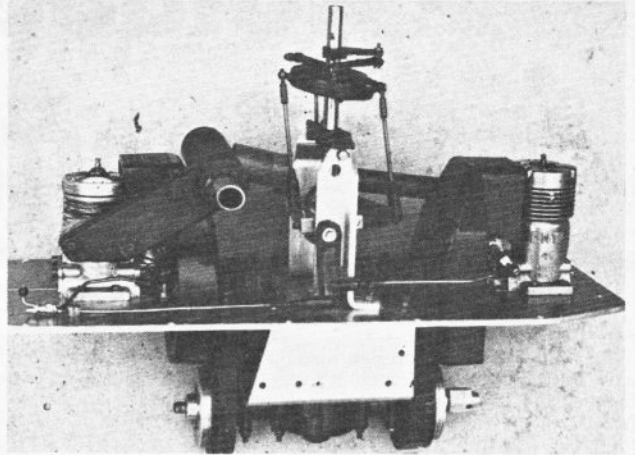
Fig. 1

## SIMPLE DIY TRANSMITTER TRAY





Left: author's twin engined experimental machine — two .19 size motors onto a common clutch via a "triangulated" toothed belt drive. Right: Seaking power plant referred to in the text — two leading shoe clutches with two pinions onto a common crownwheel.



making this set up, the clutches are leading shoe so that on one engine failure the clutch will drop out of engagement easily. The tail rotor is taken from the rear pinion assembly.

With this arrangement you can start one engine, set it up to run properly even to the point of trying to lift off — it won't, it weighs 11lbs. — stop that one, start the second engine, set up, restart the first and you're ready. With the experimental twin (V-19s) the belt had to be removed in order to tune and then replaced to start both engines with two glow clips. If one engine stopped the drag would stall the other, very frustrating, though it did fly.

The power from the two 40's is phenomenal, the model lifts off at nearly full revs at about half throttle. Makes the up and down a bit sensitive on collective, and, no, I haven't had an engine flame out yet, or a deliberate one — don't want to push my luck too far, I've already had one near disaster — but I have a feeling that collective should be on a different servo to the throttles for this. There seems no snag in having

the throttles linked though I half expected there would be. Incidentally, the model is legal, as the full size *Seaking* has two engines, the SMAE rules allow over 10cc in that case.

I originally intended pumping the fuel up from a low tank but scrapped the idea for quickness of building and have two tanks, one at the back of each engine. Not really very nice as one tank sits between the swashplate servos. The T/R and retract servos together with Rx and Ni-Cads are down in the nose.

One snag with the model is vibration, a lot of it is not heavy enough, another snag is that the layout and tension convinces me to try to start the second engine in reverse. I'm getting used to it but I've felt very foolish a few times.

Oh yes, the disaster.

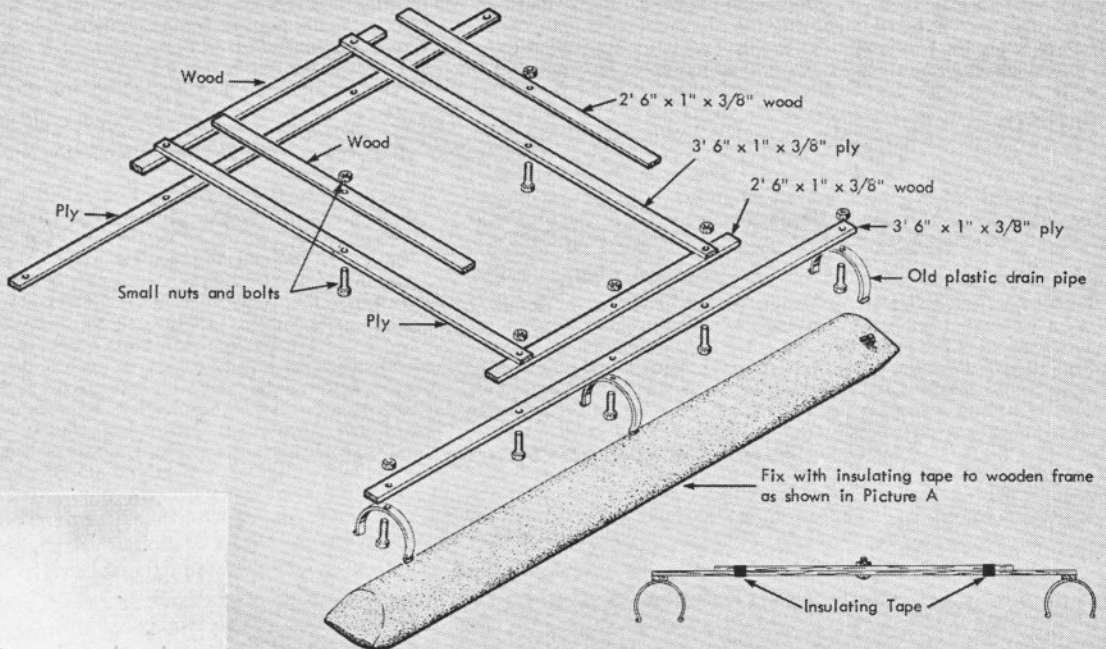
I had decided to take a picture when doing flotation trials early on. It seemed stable enough even with the very high CG. With the wheel spats as outrigger floats because of the air trapped in them, the meta centre seemed OK, however, to make a decent picture I placed the

model against a lock wall and walked round to photograph from the other side. Just after pressing the shutter the model rolled over, in about six feet of water! Fortunately the lock-keeper caught it for me before it went down, so what had happened was that one of the wheel spats was porous and let the air out, the water then gushed into the open winch door.

On the subject of photographs I would like to thoroughly endorse all that David Boddington had to say on the subject with the exception of one thing. That is on quality for reproduction. It seems to me that this is so good these days that less than the best definition and contrast will do. Agreed it is very nice to have it all right but if the subject matter is there it's worth a go. Several pictures you have enjoyed in this column (I hope you enjoyed) were very doubtful — *Wessex* from a colour print neg, monster *Cobra* from a sub miniature neg, the odd Polaroid one etc., — so if it's interesting that's what counts. And that of course is a hint for column material, let us see that unusual model.

**TRAINING FLOATS**  
design by  
J. Sidoli

Fig. 2



Left: J. Sidoli's model fitted with a pair of "Air-bed" floats.

