

# KIT REVIEW No.128

by Bill Burkinshaw

## MICRO-MOLD



# Lark II 25

Right: reviewer Bill Burkinshaw carried out all his training flights using the standard kit undercarriage supplied with the Lark as shown here.



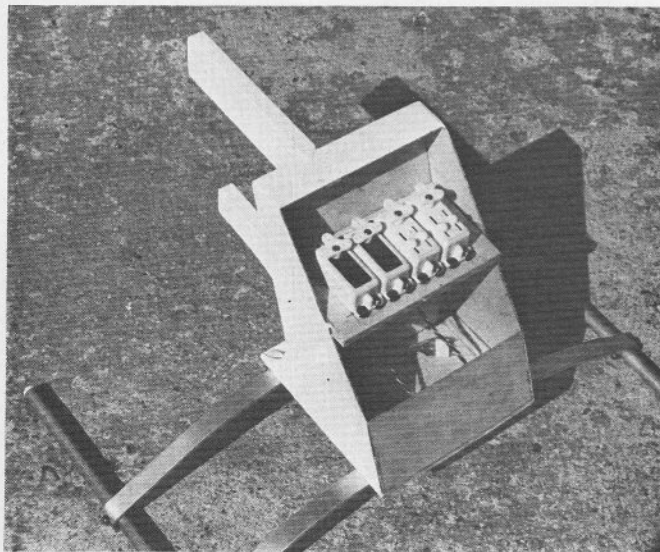
SEVERAL thousand modellers at home and abroad have already eased their way into involvement with R/C helicopters via the medium of the inexpensive *Micro-Mold Lark*. Peter Valentine's original little marvel has proven to be a rugged practical machine, albeit if engineered to a price. *Micro-Mold's Lark II 25* marks a significant step forward in both quality of engineering and appearance; its attractive racy lines are a triumph of simplicity, produced by thoughtful use of vacuum forming and shaped plywood parts. It is all too easy to pick on the minor inadequacies of engineering in some of the parts but when the completeness of the kit, its presentation and ultimately performance are taken into account, in fairness these are only of a minor nature.

### Mechanical assembly

All the parts are packaged in individual assembly packs which contain the necessary Allen keys to fit any hexagon socket grub or cap screws used. Thread locking compound is widely used and a tube is supplied. In my usual fashion I commenced construction on about six different sub-assemblies more or less together, work on the wooden parts that needed gluing proceeding apace with the mechanical assembly. The very comprehensive instruction manual provided answers to all my queries, even those problems I started to curse over were solved when I carefully re-read the relevant sections of the manual!

Great stress is laid on fitting the moving parts together properly, and it is probably inevitable that those modellers with an engineering background will find it easier to judge what is meant by 'free-moving.' Meshing of the gears in particular requires particular care, as ill-fitting gears can consume a high percentage of the available power from the engine. Care will be needed in selecting the correct packing washers, in certain instances, as it was found that whereas two washers from an

Below left: a robust plywood box forms the basis onto which the mechanics (shown below right) are bolted. A substantial plywood servo mounting tray is built into the cockpit area. Below right: the 'dustbin' type silencer provided with the Irvine 20 proved most suitable for the Lark.



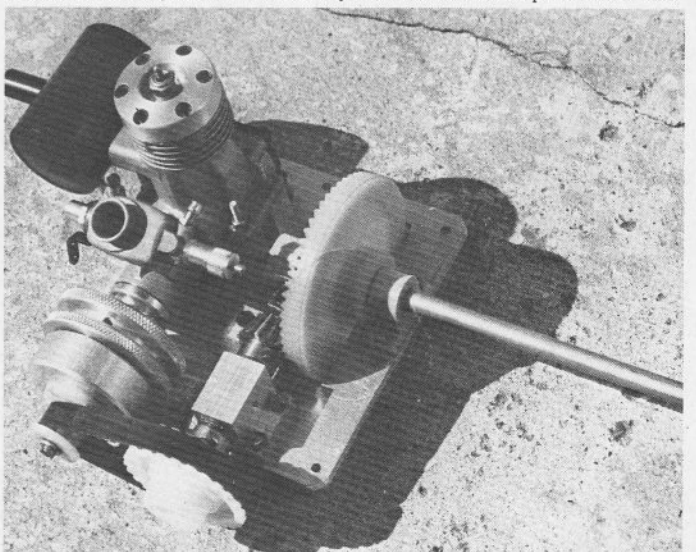
individual pack could fit, only one of them was the correct thickness to allow sufficient end-float on the tail rotor shaft. Earlier *Lark II 25* kits featured brass gears in the tail rotor gear box which we understand have now been replaced with steel. I should stress however that the carefully meshed brass gears, running in frequently replenished oil, in the review kit show no signs of wear.

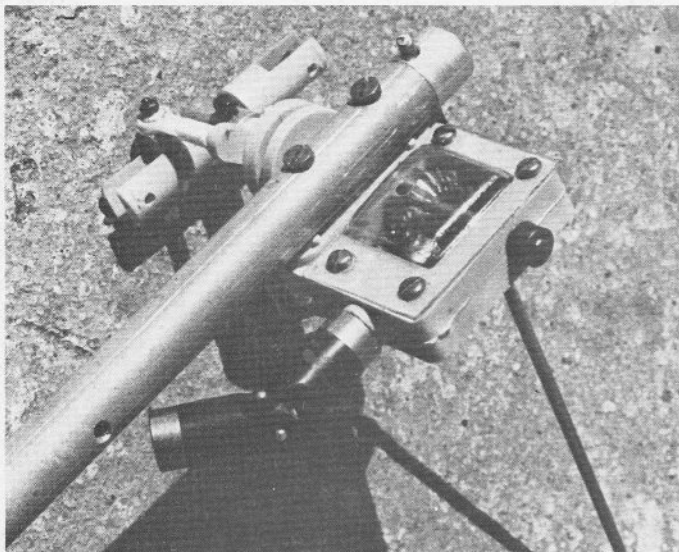
The original *Lark* clutch and main rotor drive shaft assembly was by repute a 'swine' to set up and adjust — no such criticism can be levelled at the *II 25*. A single housing bronze bush at either end carries the layshaft, and shims are supplied to enable a good mesh with the main rotor shaft bevel-gear to be obtained. Both bevel gears appear to be moulded from *Delrin*, a high strength stable plastic, but nonetheless care should be taken to ensure that the bevels mesh properly all the way round.

A one piece steel clutch centre piece is used similar to that used on *Schluter* products, which, in conjunction with a *Ferodo* type lining material results in a positive clutch action. The clutch mounts on an extension shaft which doubles as a retaining nut for the alloy flywheel. Shafts with both metric and imperial threads are supplied. The flywheel and clutch unit fitted straight onto the *Irvine 20* engine used with no difficulty.

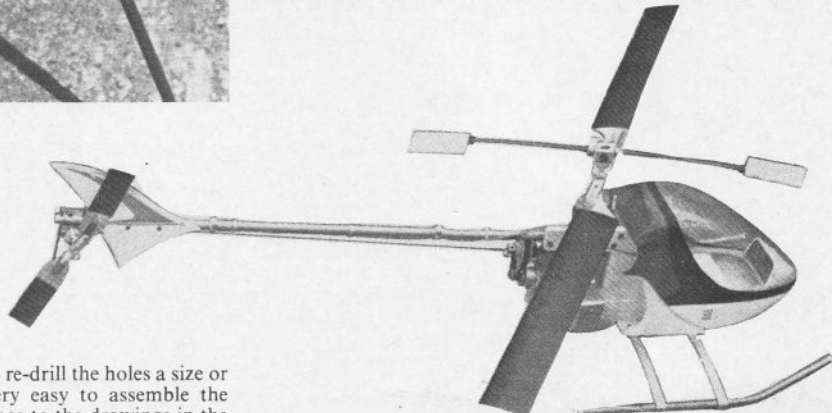
Fitting the engine to the mounting plate does require some careful measuring and a proper engineer's square, a scribe, centre punch and steel rule would be most useful in marking out the plate accurately. Detailed instructions are given for this operation. When I had assembled the whole drive 'train' and mounted the engine I slipped the toothed belt into place and was disappointed to find that it 'ran out' to the end of the drive pulley. After a considerable time spent jockeying the engine mountings I was unable to keep the belt running in the centre of the small drive gear and was forced to conclude that I was not going to be able to. Subsequently other *Lark* owners have mentioned the same characteristics which I feel is probably due to a very slight taper on the small driving gear. I should point out that it appears to have no detrimental effect on wear of the toothed belt, I am still using the original after many hours of running.

Rotor head assembly is very straightforward although the plastic ball parts of the ball-joint links were very hard to screw into place and I was





Above: a transparent plastic cover protects the tail rotor bevel gears from grit, and also allows one to see easily whether or not the oil needs topping-up. Bottom right: the rotor blade holders are fixed to the hub with a single bolt, thus allowing the blades to swing back if they contact terra-firma!



worried that they might be damaged. I decided to re-drill the holes a size or two larger which eased the problem. It is very easy to assemble the swashplate incorrectly, I did, so constant reference to the drawings in the manual are needed.

Assembly of the wooden parts, cockpit, fin, main and tail rotor blades, is very straightforward; all parts fitted well. I did however make the elementary mistake of making a left hand and right hand tail rotor blade and then had to discard *both* and replace with fresh wood from my stock. Note, I said *both*, the tail rotor has to be balanced and it is far easier to balance if both blades are made from identical grade materials.

Full instructions for setting up the rotors and a method of accurately drawing a pitch template are given. I used stiff plastic sheet for my pitch template. I covered all rotor blades with *Fablon* and balanced them using strips of adhesive tape for weight, wrapped round the tips.

As already mentioned the attractive cabin is built up from several vacuum formed parts, (including a textured plastic seat moulding,) over a plywood base. The finished assembly can be decked out with pilot, instruments etc., if the builder wishes, I didn't, and is retained with *Velcro* tape. A large sheet of water slide transfers is included to finish the model exactly as shown on the box top.

### Radio control installation

*World Engines Talisman* R/C equipment was fitted in accordance with the very detailed instruction supplied. The small *Dunhams* servos fitted easily into the space available and the option of linear or rotary outputs proved useful in setting up the various controls. It is essential on a helicopter to have completely free moving controls, a great degree of precision is required when flying the model and unless the centring of the controls is spot-on, flying the model will be made just that much more difficult. Battery, switch and receiver are easily accommodated in the compartment below the servos where adequate space for foam packing is also found. I allowed the receiver aerial to trail loose, but care is needed that it isn't trodden on when carrying the model about.

### Flying the Lark

It is only fair to say that the *Lark* was my first helicopter and thus my experiences can be taken as typically those of the average modeller attempting to fly a 'chopper' for the first time. Most people who build the *Lark* will doubtless be new to the game and with care and a little luck should be able to achieve success as I did. Initially I started up and ran the model in my back garden to check thoroughly that all was well with the mechanics. Weighted down with several bricks two tanks of fuel were run through the engine then everything carefully examined. No signs of anything amiss were noted so the following morning I went down to the flying field.

The instruction manual certainly inspired confidence for if it were to be taken literally a few minutes of familiarisation with the controls would be all I needed before taking off and flying round the field! I read with increasing confidence, but with all the memories of experienced chopper pilots' descriptions of flying their machines nudging at my subconscious I was forced to believe that the manual was an oversimplification.

Once started up and in the centre of the patch with rotors whirling, I began to realise that the chopper experts were closer to the truth than the manual! But after two full tanks of fuel with the *Lark* sliding around on

the ground I began to gain in confidence. With a slight increase in r.p.m. the model could be lifted a couple of feet off the ground whereupon it began to exhibit a mind of its own. After a further two tanks of fuel I had the trims set so that when lifted off the *Lark* set off more or less straight ahead.

A second trip to the field followed during which I attempted low level 'hops' across the patch but much to the delight of interested fellow club members one click too much on the throttle, lifted the *Lark* to some 20 ft. altitude whereupon she set off across the field with myself in pursuit. I managed to set her down in one piece and then paused to allow the adrenaline to subside before continuing.

Several unwanted trips across the field later and on my fifth visit to the patch I began to feel more confident and was now taking the *Lark* up to 10 ft. altitude and attempting to keep it in one place. Over-confidence is an insidious beast and it crept up on me to the extent that I didn't take down the electric fence which surrounds our patch for one of my flying sessions. The inevitable occurred — I flew the model into the wire! Little damage was sustained but my flying was curtailed while I replaced the tailboom fixing bolts and made new tailrotor blades.

On my seventh visit to the patch during one of the frequent runaways discretion went to the winds. As the *Lark* headed off across the field I

stayed put chasing the model was not for me! Stick forward, and she accelerated rapidly. Stick over to one side and a smooth left hand 180° turn was accomplished. Heading downwind over the patch with fellow club members' eyes warily on her, *Lark* was persuaded to complete the circuit back over the patch. Now to land — pull back the stick slightly to stop that forward motion and up she goes gaining altitude rapidly in a beautiful vertical climb. Oh well, another circuit — this also successfully completed but as she comes over the patch ease the cyclic stick back slightly and close the throttle fractionally. Down she comes but still with some forward speed. Graham, who is carrying his model back from an outfield landing trots smartly to one side as the *Lark* performed a relatively smooth landing at the end of the patch.

"So it can be done — I've done it!" The sense of satisfaction was enormous, that first circuit was the most exciting that I have experienced with an R/C model for many years.

### Conclusion

The *Lark II 25* represents very good value for money. With careful assembly and thorough maintenance many hours of use can be expected with a minimum of wear. A 0.20 cu.in. engine on straight fuel provides only marginal power (I had to use a 15% nitro mixture when flying on a calm day). This is a thoroughly practical model; during the whole of the initial learning period I have only damaged the tail rotor blades, and sheared several mid-steel 6BA bolts. I understand that most bolts are now to be of high tensile material in *Lark* kits.

**Price: £87.95. Distributed by Micro-Mold Ltd.**

