R/C HELICOPTERS REVIEW OF THE KALT CYCLONE — by Martin Briggs and Photographs by Roy Wilson

The kit and its contents.
A.R.T.F. has finally arrived in the world of model helicopters. A.R.T.F. might not be familiar to you 'copter fliers but anyone who flies fixed-wing models will know it as an abbreviation for 'almost ready to fly. We have seen examples of ready built models such as the KKK Hughes 300 and more recently the Hirobo Shuttle, but the fact that they are factory finished is reflected in their relatively higher retail price.

What Kalt have done is to market a model kit of parts very small in number and mainly made of plastic that can be put together by the average novice in about 5/6 hours. That time is from opening the box to starting the engine, assuming you charged your batteries the night before.

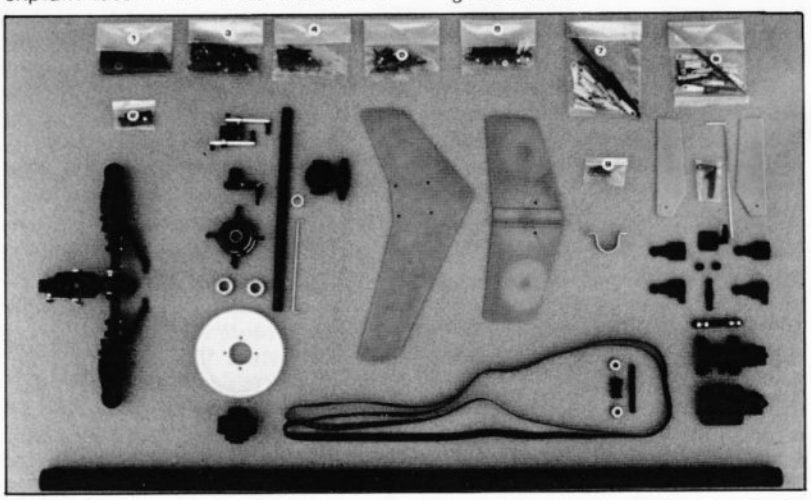
The current price of £225 (in the U.K.) and the small box that the Cyclone comes in could lead one to think that this is a small model aimed at the bottom end of the market. Nothing could be further from the truth. For a start, size-wise it is about the same as a Baron 50 and it also has some high quality components normally found in much more expensive kits i.e., heavy duty metal clutch, moulded and fully adjustable servo trays, twin ballraced tailrotor blade holders, two piece cooling duct, machined ally engine mounting block, 10mm main shaft with aerobatic mixing levers, etc etc.

The two most unusual features however are the belt tail drive and all (nearly) plastic construction. Both of these features have in the past given problems when tried by other manufacturers, but Kalt have got their sums right with this one. After many hours of flying with the Cyclone I can vouch for both the strength of the model and the reliability of its belt taildrive.

The building. Or to be more accurate the constructing.
The claimed construction time of 5/6 hours I totally agree with, as that is the time I took if you discount a prior study of the instruction manual and a strip down at the half-way stage due to an omission in those instructions which I will explain later. I am a cautious and methodical builder by nature, (and I don't recommend any other way) but I would imagine many could halve or reduce this time considerably.

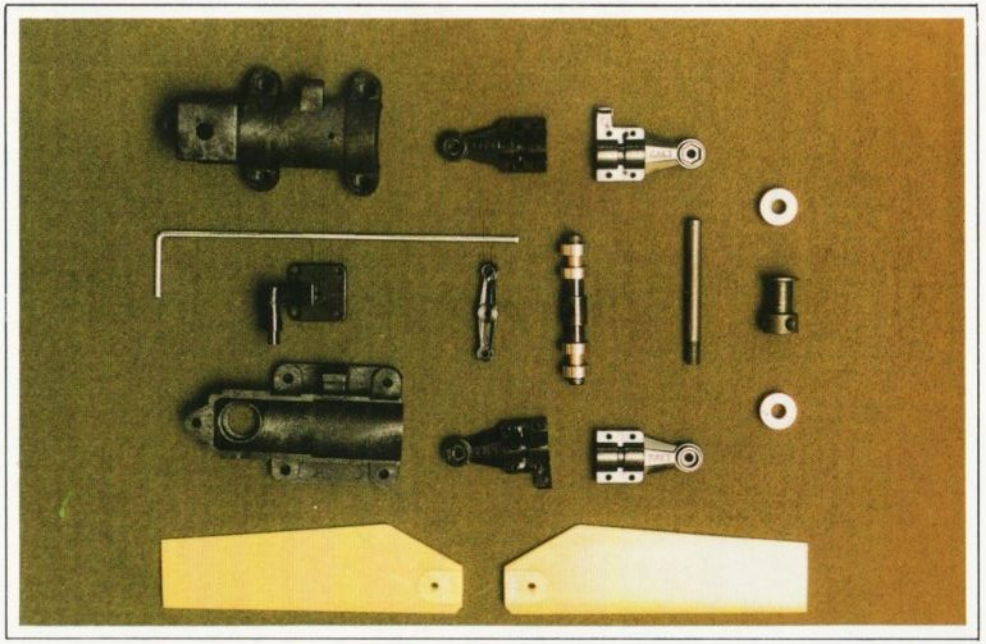
Some of the usual jobs associated with model helicopter construction which don't arise with Cyclone are listed below.

1. No metal working, (filing grinding or soldering etc).
2. No wood working, (cutting carving or sanding etc).
3. No painting.
4. No blade balancing or blade covering.
5. No glueing, except that supplied for the canopy.
6. No Loctite, except for a few grubscrews.



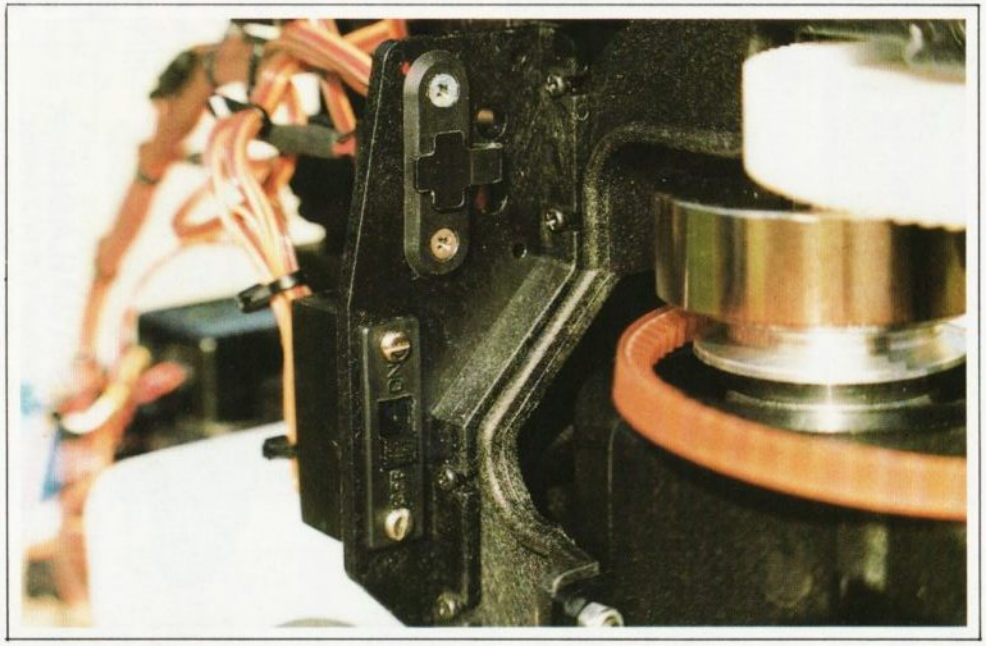
Main rotor, main shaft with swashplate, mixing levers and main gear, tail fins, tail rotor, tail drive belt and boom with numbered bags for easy identification.

All the individual components laid out prior to assembly. The abundance of plastic parts does not detract it's tremendous quality and robustness.



Tail rotor components show simplicity yet have top flite items like double ball raced bearings on blade holders and pre-shaped and balanced tail rotor blades.

Close up showing the rotor head and collective/swashplate assembly. Note the aerobatic mixing levers.



The escutcheon plate designed to hold a Rx switch and gyro contol box/switch which fits neatly onto the left side frame. Other manufacturers please note.

7. No difficult clutch/transmission alignment.

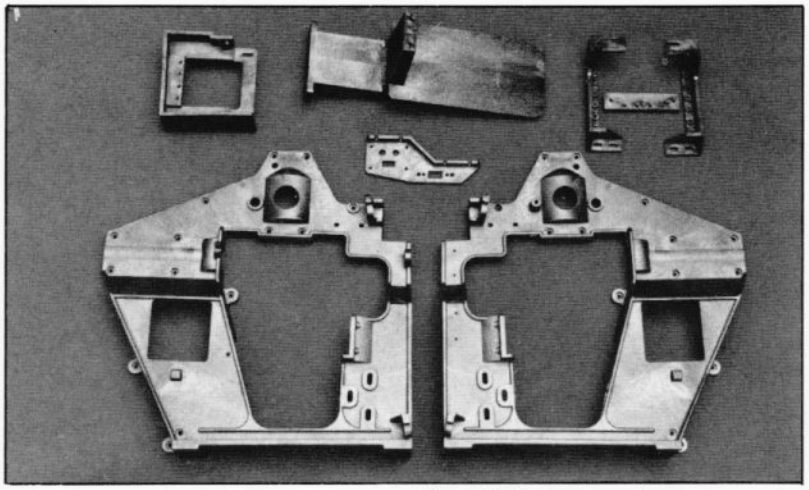
The first few pages of instruction are devoted to the parts contents list and a parts identity sheet which shows clearly all the different types of nuts bolts and screws etc., which ties in with subsequent stages of construction. With such a clearly written and illustrated list of instructions it should be impossible to go wrong. (Famous last words).

The main rotor head is the only pre-built part. I didn't strip and rebuild as usual and have not suffered any failure as a result of this non-action.

Before the plastic sideframes can be put together one has to assemble the engine/clutch unit and the main shaft with its attendant parts. These are then layed in the right hand sideframe with other bits such as cooling duct, starter belt, cyclic bellcranks and swashplate anti-rotation support. The two frames, which are very high quality mouldings (like the rest of the plastic parts) are then held together with caphead bolts and nyloc nuts.

This is where I found an omission in the instructions. Once the sideframes had been bolted together I found that the effort required to move the collective pitch mechanism was far more than I could expect to get from my servos, (J.R. 4001). I stripped out the mainshaft thinking the problem could be a faulty bend on the coll/pitch push rod, but found nothing wrong there. I eventually cleared this excessive friction by lubricating the coll/pitch slide-ring bearings with Triflon. Who would think you should oil plastic to plastic bearings?

The sideframe mouldings incorporate hexagonal recesses for all the nyloc nuts. This is just one of the many innovative features which make the model so nice (and quick) to build. A lot of these features are not apparent to a casual onlooker but at each stage of construction one can find another thoughtful design point to help the job along. These include, servo trays that will accommodate any standard size servo, moulded in clips for the tailrotor pitch change rod, moulded in recess for the gyro and a very nice moulded escutcheon plate designed to hold a Rx switch and a gyro control box/switch, the whole of which bolts on to the left sideframe just above the clutch. My gyro has no seperate control box, nor does it have long enough leads to reach the recess provided. However there is enough space on the batt/Rx support plate to accommodate the gyro as well and I used the spare hole in the switch plate for a charging socket. I hate to see loose fly leads hanging about.

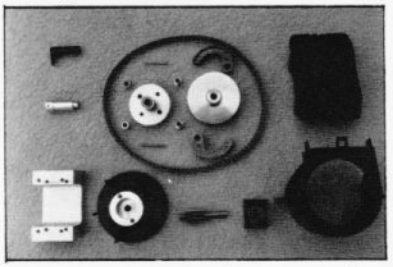


The side frames and servo mounts moulded very beautifully out of plastic, which being one of the new modern plastics is incredibly strong.

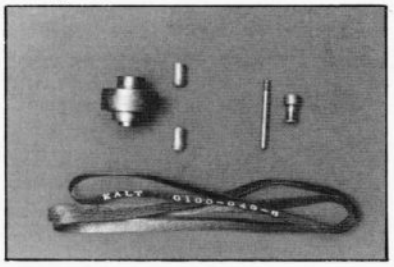
The instructions and hardware provided, allow for four or five servo installations. I used five servos and would recommend this because it makes for easier setting up for individual taste and change of mode. (I'll explain that one later).

The instructions recommend (and the engine block is drilled for), either an O.S. 50 FSR, or an Enya 49X. I used an O.S. and would recommend it for its power, smoothness and relaibility. I also used an O.S. 774 silencer with a 90° turnround, not the quietest or cleanest but the only one I had at the time.

I used a J.R.8 radio thinking that one day I might kid myself into flying the Cyclone with its legs sticking up. (The J.R. has an invert switch).



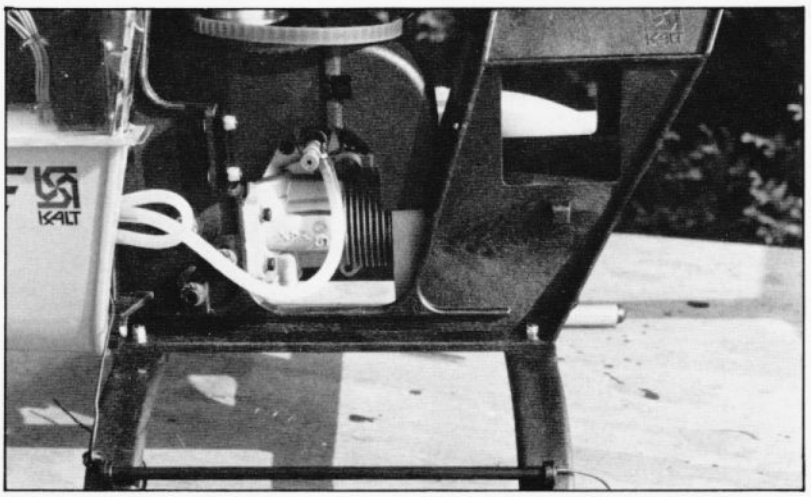
Fan housing, fan, engine mounting block and the new clutch. Note the new increased size of the ferodo clutch shoe lining.



Tail drive belt with drive rollers.

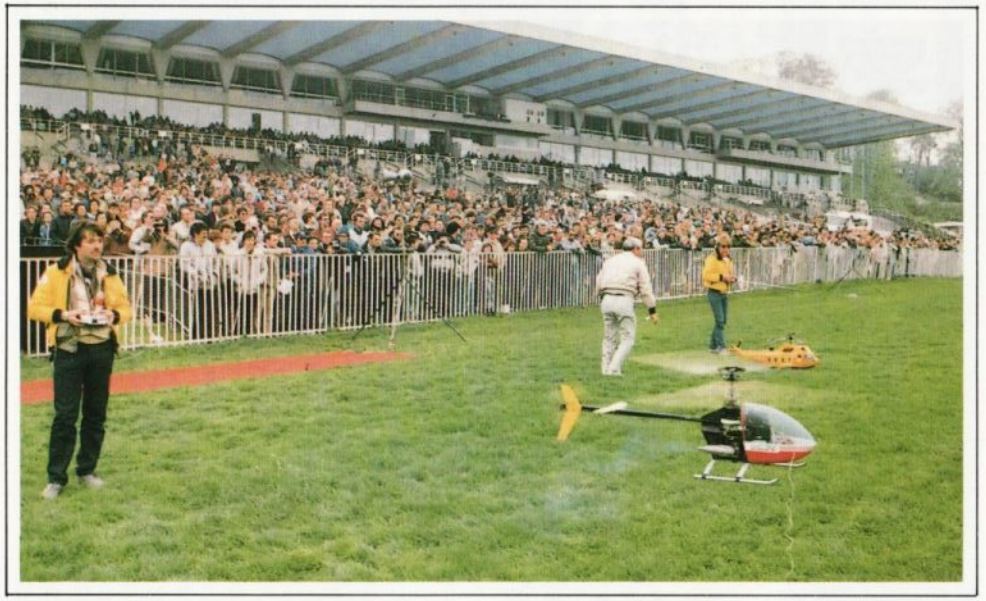
The Flying.

With no tail boom support supplied in the kit I was expecting to see some vibration along the boom as I lifted off, but once I had corrected a minor tracking error none was evident. This upheld the claim of prebalanced main and tail blades. The setting up guide lines regarding coll/cyclic/tail pitch throws were just about ideal except that my Cyclone was happier running at what I would call 'trainer' speed. Any attempt to increase rotor speed promoted a severe blade tracking and a peculiar nodding



With engine installed. Note the space for gyro to rear of side frames. Also note tube on skids for receiver aerial to exit. Kalt have really thought this kit out.

Nigel Ashwood, Chairman of the Norwich Model Club, seen here flying his 'Cyclone'. Nigel runs a hobby shop and as seen here, makes certain everyone knows where to buy the model. Certainly good advertising for him/Langley's and for the sales of this great new Kalt model.
Photo: Editor



John Wallington (on the left), currently the 1985 British National Champion, seen here demonstrating the 'Cyclone' at this years Sandown Symposium. John certainly benefited with his experience at the World Champs where he came 17th, yet has now ousted Vago Nordigian and Len Mount from the top flier's league in the U.K. Watch out Ewald Heim and Shigetada Taya at the next World Champs.
Photo: Editor

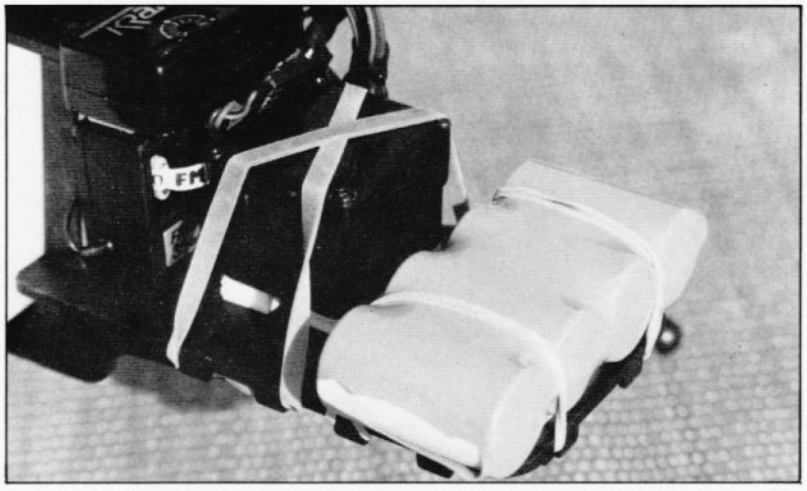
A static shot of the completed kit as reviewed for 'R/C Helicopters' by Martin Briggs. Thanks to Kalt, for supplying very quickly this model to review.
Photo: Roy Wilson

The Baron 222/Baron 60 kit which the Editor received recently from Kalt to do a review. Also supplied were engine, muffler and retracts. Airtronics of the U.S.A. have supplied their latest module heli radio to be reviewed with this model. The review will be in two stages (as a scale review) starting in VOL. 3 No. 3 (out February 10th 1986).
Photo: Editor

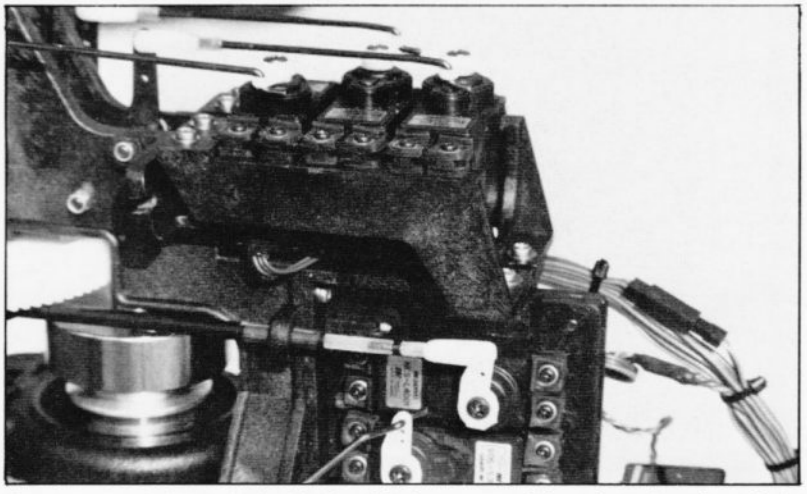
Martin Briggs seen here with the model he reviewed for this magazine. As it is a sporty and modern model, his attire for beach fashion is somewhat passé. The scene for these -

- photographs, was on the Norfolk coast in England. Not even with the sunshine does the North Sea look appealing! I expect Martin is asking himself if the Editor will bring him out to the B.V.I. for another review. Sorry Martin, if the Ed. has to return to the cold then it's a tough life!

Photos: Roy Wilson



Showing placement of receiver, battery and in the reviewers case gyro.



Servos neatly installed side by side in two positions keeping the whole affair well laid out.

motion. I knew that I was going to meet John Wallington from Slough R/C, (who import Kalt into the U.K.), in a few days so I just continued to fly the model at a reasonable speed until then.

My guess was that the blades were too light. When I checked on the scales I found they had a combined weight of 160 grams. This is well below average and I would suspect that the missing weight could only come from the leading edge. (If you didn't know that a rearward C of G makes a blade unstable, go to the back of the class).

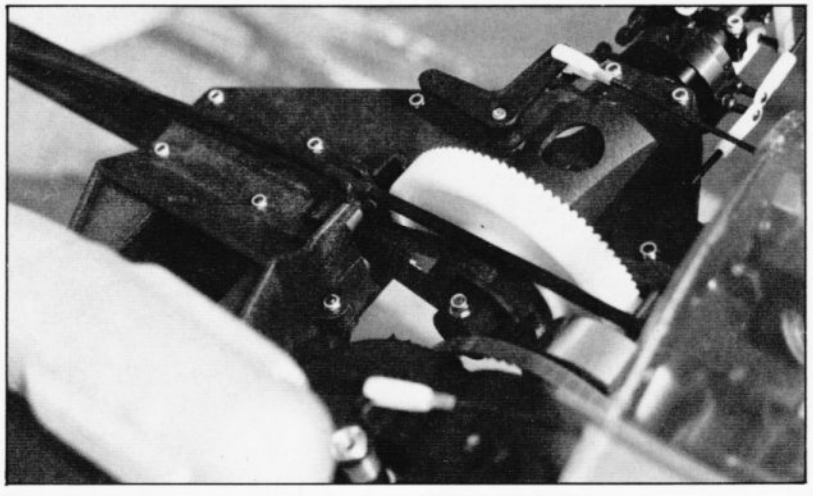
After meeting John he agreed that the blades were too light and sent me another pair which allowed me to run the rotor speed as high as the O.S. would permit. He also cured the nodding problem, I had got the blade mounts nipping the blades too tightly. Not wanting to waste a pair of blades, I milled out a slot in the original blades about 25mm in from the tip and as close to the leading edge as I dared. I filled this slot with 'Vago Juice' — a non metallic powder which effectively adds weight to blades. It is available from Watford Model Centre. See their advert for address and also page 45 of Vol. 2 No. 4 — amounting to about 25 grams in each blade. I then refitted these blades and experienced no further problems at all. I feel I was just unlucky to get these blades and I am sure that everyone else will get normal weight items in their kit.

I continued to fly the Cyclone with my original blades, quite happy to accept it as a trainer/sport type model, the head with its mixers on was more than adequate and the tail at 5-1 (head to tail) ratio was quite powerful. In that trim I would say it was unbeatable as a trainer and if fitted with a pair of floats (something I strongly believe in as a training aid), I would have happily given it to a first timer.

Having been out with Roy to do the photography for the Editor, who says he was not basking in the sunshine at the time, all that remained was to find out the full potential of the model. i.e., change mode to aerobatics.

John Wallington had explained to me that the new blades were of the 'H' series type. These have been made from the finest materials available and were designed to give greater hovering stability, smoother highspeed aerobatic flight and superior autorotative performance.

When it comes to superswooping there is no substitute for high r.p.m. So with a tweak of the needle valve and a reduction in pitch I was in 'aerobatic mode'. With another club member standing beside me (his arm up my back), I very easily executed a loop and a roll. In subsequent flying sessions I have also managed slow rolls and reversals and half rolls from half loops. Rotor speed in this trim is about 1450 r.p.m. and the new blades make aerobatics very easy without any missed heart beats. The kit as supplied does not include an autorotation freewheel. I suspect this is because Kalt believe most Cyclones will be sold to beginners who won't want one. They should think again on this point because I think that a tremendous number of sport/-Sunday fliers will buy a Cyclone and they will want to autorotate. John has promised to send me a freewheel as soon as they get one.



Looking at the main gear, it can be seen where and how the tail drive belt works.

Summarising.

I genuinely believe that Kalt have a real winner with the Cyclone. It has to be the best value for money on the market today.

M.J.B.