

'SCHLUTER HELIBOY KIT REVIEW'

by LEN MOUNT

Introduction

Why, I hear you say, is there a need to review a radio controlled helicopter kit nearly seven years after it was first released.

Well, the Schluter Heliboy is still considered by many to be in the top 'flight' of kits available on the market today. Its continued popularity is due to a number of factors but for price and robust design it can be considered the ideal machine for both beginner and expert alike.

It says a lot for this popular helicopter kit, that Dieter Schluter has only made minor alterations since its original release late in 1977. And with the British distributor, Jack Williams of Hull offering an excellent and complete back-up service to the model trade, makes this R/C helicopter unbeatable in its class.

The kit

No plan is provided for the mechanical kit in its basic 'tail and boom' configuration, but a comprehensive instruction manual gives very good step by step building details, with each sub-assembly contained in its own numbered bag which corresponds to the particular chapter in the instruction booklet. For the new modeller, the kit even includes the basic tools needed to put the helicopter together.

The main side frames which make up the 'chassis' of the machine are fine blanked from 2.5mm aluminium sheet alloy, these are separated by channel section spacers and a 20mm diameter tube is used for the tail boom. The motor which is mounted vertically with the crankshaft upwards and the cylinder head facing forwards is connected to the drive train via the standard Schluter metal clutch and bell housing, which is quite the best I have seen on any model helicopter.

The drive to the main rotor has a reduction of 8:1, and this is achieved through a large main gear, which incidentally comes with or without autorotation facility. The tail rotor drive, which via a 2mm diameter shaft running inside the tail boom, is also picked up

from the main gear with the overall ratio between tail and main rotors being approximately 3.6:1. The tail rotor gearbox itself, comes in two halves with the unequal bevel gears being located on bearings running in a bath of grease, of which a large tube is included in the kit.

The main rotor head is of a strong robust design, which has the novel feature of allowing either Hiller or Hiller plus a degree of direct mixing for more positive steering control. Parts are supplied for both arrangements and the change from one system to another is quite easily made, with the 'mixing' system being more suitable for the experienced flyer. The collective pitch control is via a bell crank located just below the main shaft which moves a 2mm diameter wire to gain the appropriate amount of pitch supplied to the rotor blades.

Four channel radio is required with the collective and throttle movement located on the same servo. However, if the free wheel unit is fitted to the main gear it is strongly recommended that a fifth servo, is added to enable 'engine on' autorotations to be accomplished.

Putting it all together

The building of the basic kit is primarily in sub-assembly form, adding to each other for the final construction, a fine example of this is the side frame and undercarriage assembly, which are contained in bag number one, this sequence is achieved in a matter of minutes and the helicopter is soon beginning to take shape (note: Schluter now recommends that the bottom U-channel is cut off level with the front of the side frames and the surplus is added at the rear to give extra strength, also if the U-channel is inverted it makes for easier cleaning once the model is in use).

It is with the rotating parts that most care is needed, as any misalignment now in construction will be greatly magnified and cause unnecessary vibration and wear when the model is being flown. I have found a dial indicator, is ideal for this purpose to 'clock' each part as it is assembled to ensure it is running true.

The cabin bulkhead and servo carrier are made from 2mm ply which is marked out, but not die cut. When putting the woodwork together a useful tip is to use any surplus wood from the cutout procedure to strengthen the top and bottom of the main bulkhead. It is important to note that the front of the woodwork assembly should not be wider than 120mm at the front, to ensure it will not fail the plastic fuselage canopy. There is ample room for any modern radio gear, plus a 'gyro' if required. I decided to use Futaba 'J' series radio with 131 S servos and a normal Futaba rate 'gyro'.

Moving on to the rotor blades which are pre-formed and need only the ends finishing and covering plus a layer of fibre glass on the root. Great care should be



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Clutch with one-way bearing	£15.00 p&p £1.00

taken to get both sets of blades correctly balanced as failure to do so will result in unwanted vibration on the rotor head or could even make the model completely unflyable.

Finally, great care is needed in the tail rotor gearbox assembly to ensure that firstly the unequal bevel gears are correctly fitted (with the largest gear going on the longest shaft) and secondly that the stepped washers have their inner face towards the centre of the ball-race. This all may sound quite 'belt and braces' but I have seen quite experienced modellers get these the wrong way round and find the tail rotor control unmanageable on their finished model.

Flying

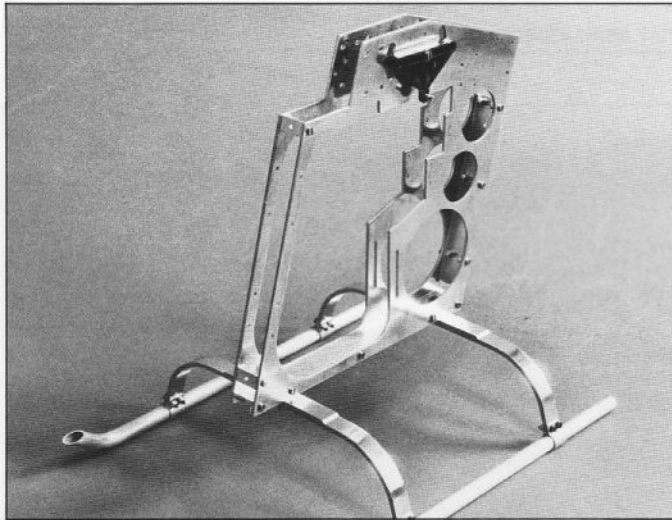
The setting up of the model was carried out as per manufacturer's instructions with the Hiller and direct mixing configuration. One of the most important considerations during the setting up procedure is to get the correct relationship between the pitch and throttle servos. Personally, I prefer the model to start lifting off at about $\frac{5}{8}$ stick movement, however this will vary on the personal preference of the individual flyer and the torque curve of the motor chosen to power the helicopter.

The amount of pitch movement ranged from $+6^\circ$ to -1° (if autorotation unit is fitted) and $+6^\circ$ to 0° when flying on the standard main gear. And the lightweight paddles supplied with the kit give a stable but responsive feel to the model however it is recommended that the beginner or novice flyer fits the

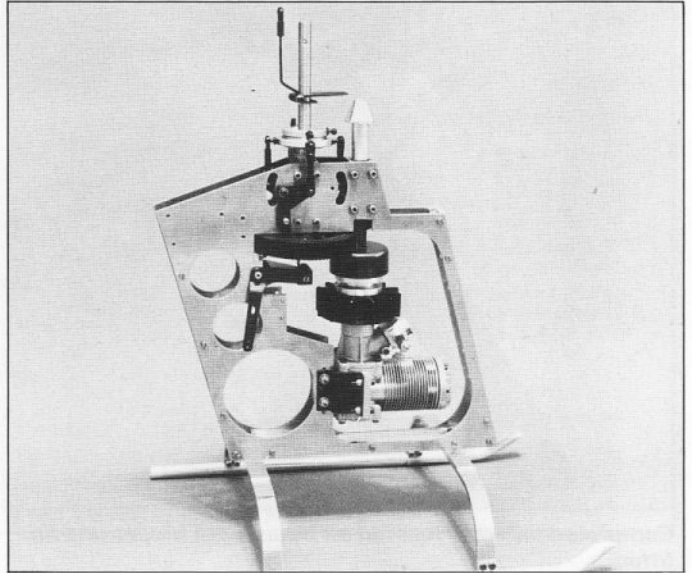
standard Schluter bobble training weights to the flybar.

The completed model lifted off on its first tank of fuel with only minor adjustments to blade tracking, and on its third tank of straight castor the 'Heliboy' was readily performing loops, rolls and all other manoeuvres from the FAI Schedule.

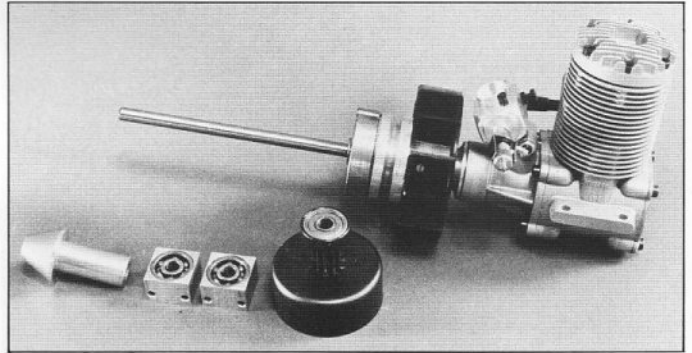
In conclusion the Heliboy has always proved a reliable model helicopter in its various forms that I have used it over the past seven years. And I have no hesitation in recommending it to both experienced and novice flyer alike as it is in my opinion quite the best Radio Controlled model helicopter available on the market today.



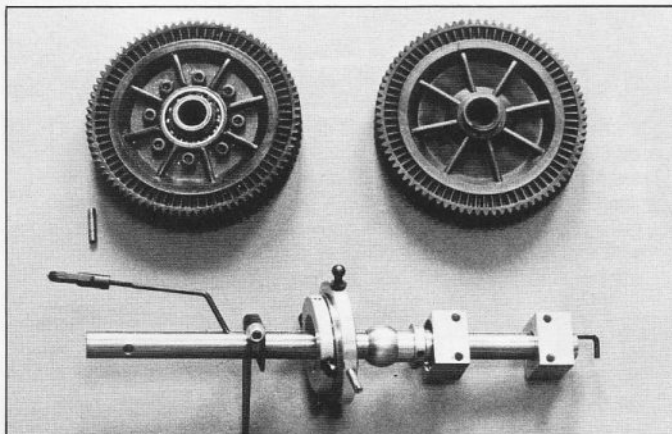
The side frame and undercarriage assembly – note the inverted U-channel (see text for details).



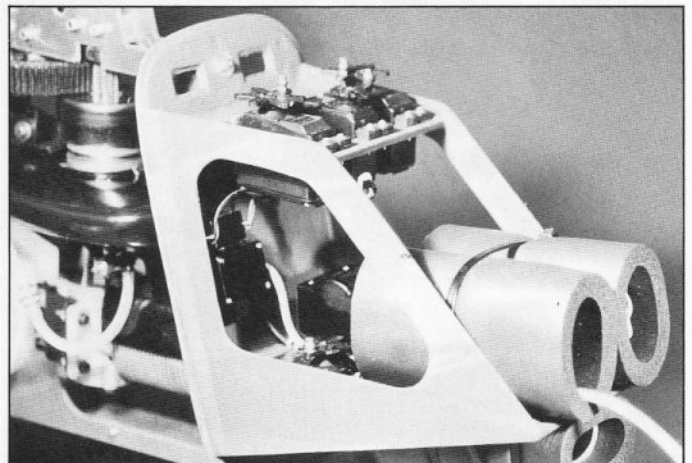
The side frames now fitted with the drive train and swashplate/linkages etc.



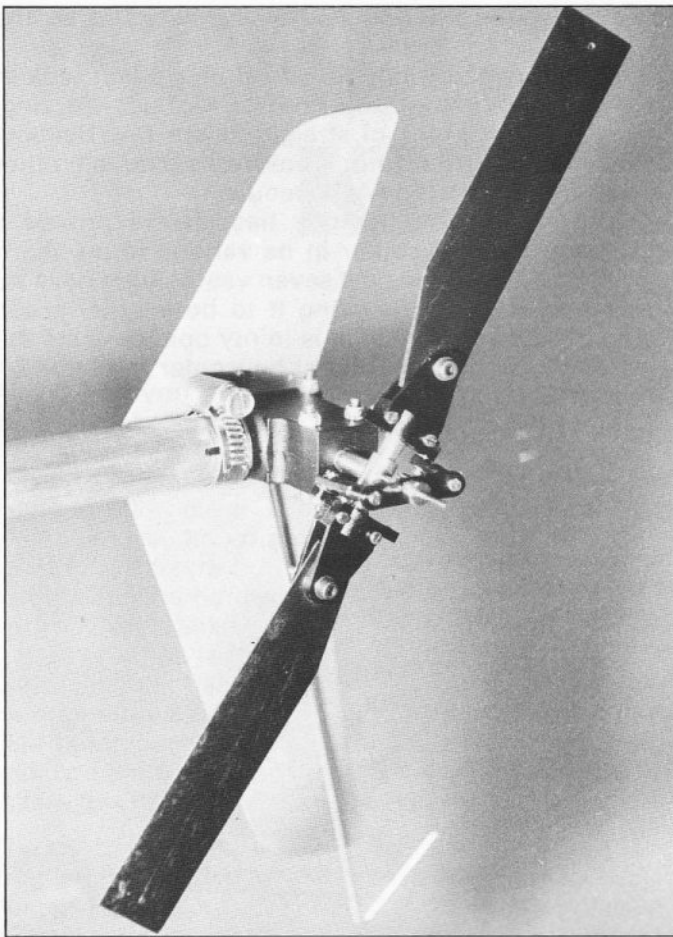
Webra 61 fitted to the Schluter clutch and starter assembly.



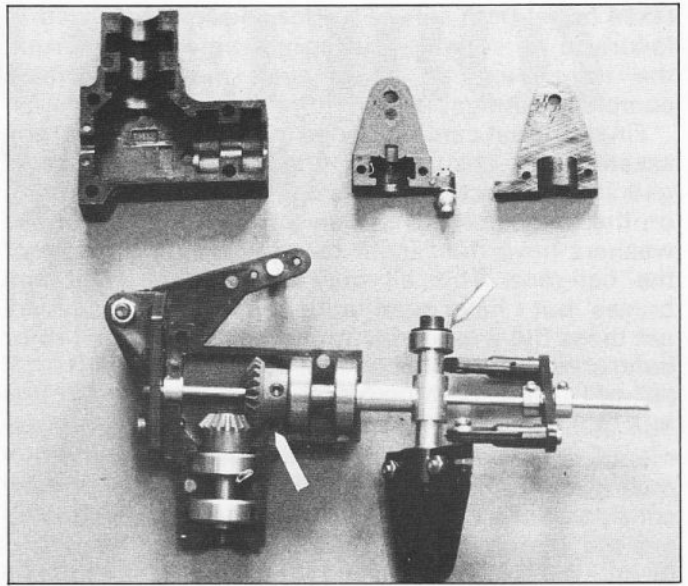
Main shaft assembly – note the main gear on the left has an autorotation unit fitted as an extra item.



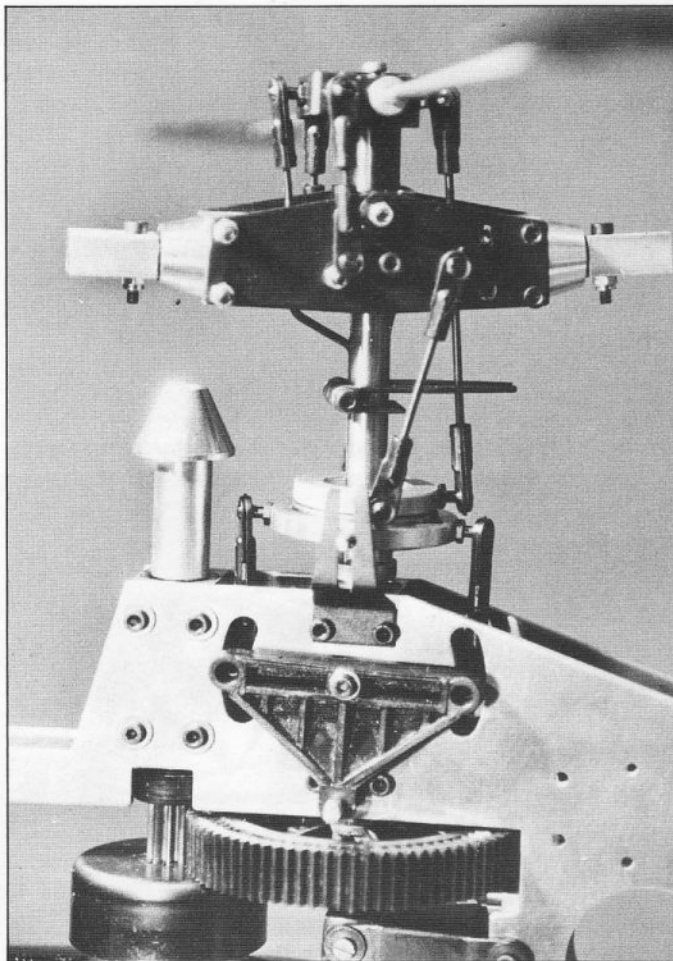
Bulkhead and servo carrier – note the extra plywood at the top and bottom of the Bulkhead to provide extra strength (see text for details).



Completed tail rotor located on boom with blades and fin fitted.



Tail rotor gearbox – care should be taken over this assembly where arrows are marked (see text for details).



Main rotor head assembled in the 'Hiller' with direct mixing levers format.



The Heliboy in flight.



Len Mount seen here flying the completed model.