



# Robbe GEIER

## KIT REVIEW

By Ray Favre

WELL, this is certainly something a little different! The Robbe 'Geier' (German for 'Vulture') is a 60 in. span flying wing for 2-function R/C. Control actuation is via a mechanical mixer driving combined full-span elevator/ailerons. The model looks to be a slope-soarer basically but tow-hooks are supplied for bungee launching and an engine mount is built-in for .09 engines (or electric?).

Structure comprises a one-piece, slightly-swept wing (with a mild reflex section) with a short fuselage pod underslung. The wing is built-up from balsa and also carries twin out-board fins. Fuselage is an ABS moulding supported by ply. A conventional canopy completes the assembly.

Material is all of good quality although I found the plywood somewhat 'splintery'. All balsa die-cutting is excellent, but the ply die-cutting needed a fret-saw to separate the parts from the sheet.

All parts, except some strip-wood, have identification numbers printed or embossed on them and the method, now-common in continental kits, of constructing the model in (roughly) numerical order is used. The instructions come in three languages, German and French in proper booklets with good photos – the English on a duplicated sheet, which reflects the fact that Robbe are well-established in Germany and France, but only just entering the British market. The English translation is quite acceptable and only a few phrases caused the knitting of brows for a few moments.

One of the best features of the instructions is a very comprehensive check list of parts which also shows the supplied stock size from which the item is to be cut in the few places where cutting is necessary. Together with the numbers on everything, it would be very difficult indeed to use the wrong piece of wood. At last they're catering for people like me!

### Wing construction

The balsa construction is entirely conventional. Left and right wing halves are built

separately and then butt-jointed with no dihedral. Spruce spars, sheeted top and bottom LE, balsa webbing and cap strips are all used.

The only tricky part of the building of the wing is the trailing edge. Because of the reflex, the ends of the ribs are raised off the building board and the instructions require the builder to glue a truncated TE section directly onto the ribs. This requires considerable care for accuracy and I found that scrap strips of packing were the best solution. After this step, 1/16 in. sheet strips one-inch wide are fixed to the top and bottom of the TE more conventionally. The TE would be more soundly constructed if somehow one of the one-inch wide sheet strips could be attached first to form a solid guide and support for the TE section.

The most inboard rib on each wing half is of 1/8 in. ply and incorporates the motor mount. This is simply a fairly substantial lug to which a motor mount would be bolted.

The underside of the wing contains a cut-out space at the centre section for the mechanical mixer/servo assembly.

### Fuselage

Only a minimum amount of work is needed on the ABS moulding. This consists of epoxying a single upright ply former that interlocks strongly with a ply cockpit surround. Small ply stern plates and a tow-hook doubler complete the structure.

The canopy is conventional but note that the tinted blue plastic continues behind the canopy itself and forms the top fairing between the wing and fuselage. The canopy fixing is more secure than in most models – a wire rod locates in aligned tubes in both the fuselage and the canopy.

The fuselage is cavernous and would easily take two sets of airborne equipment if that would turn you on!

### Mixer

The kit comes complete with strong plastic

mouldings to assemble a mechanical mixer suitable for modern small servos. Photographs show the system far better than a description – as can be seen, one servo output is connected to the mixer frame and so this effectively 'pushes and pulls' the servo tray to and fro for elevator movement, with the other servo providing aileron movement.

As my gear (still going strong!) has larger servos I merely scaled up the mixer in stout ply – the fuselage is quite large enough to permit this. The whole assembly is screwed onto a ply plate fixed to the underside mounting box of the wing.

### Assembly

The wing simply fits onto the moulded fuselage with a rear nylon bolt and a hardwood dowel for front location. An extra 1/4 in. length on the nylon bolt would have been preferred because only about 3 complete threads were able to be used in the final assembly.

I found it necessary to set the controls at full 'down' in order to permit the control horn connection to drop into the fuselage properly – but once inside there is no restriction of movement.

No guidance is given on the amount of control surface movement needed but with full span controls it was clearly not going to need much. In the end, movements of only about 1/4 in. up and 1/4 in. down (measured at the TE of the surfaces) proved entirely satisfactory. I adjusted the neutral position of the elevons to coincide with the natural line of the reflex, i.e. it looked slightly 'up' in the conventional sense.

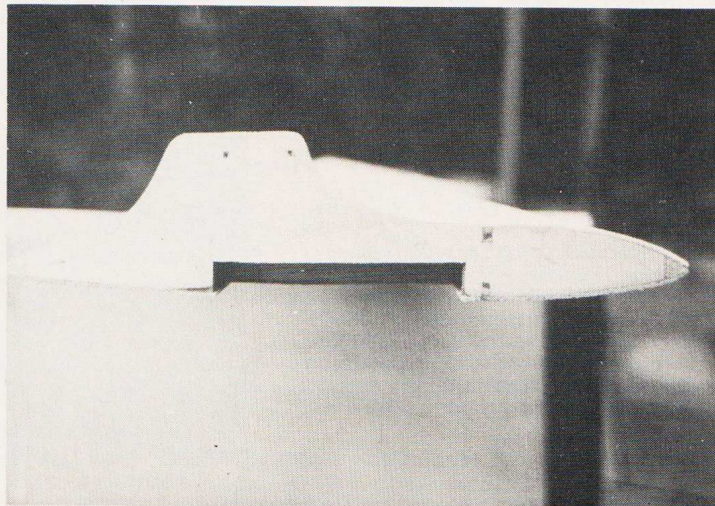
The balance point shown on the plan is about 1/3rd back from the wing LE at the centre of the wing. I found that the battery pack position could easily be adjusted to obtain this – but make sure that, having done so, your battery will not shift in the event of a heavy landing.

### Flying

I decided that a slope test would be the best way to try the model out rather than a bungee



Above left; Ray reports the Geier as 'remarkably docile' on the bungee line. Above; Ray had quite a struggle to hold it steady for this shot in 25-30 mph wind, taken after very satisfactory first test flight.



or power-assist. The chosen day was not particularly ideal when we reached the site (it was great 30 miles away and 80 foot above sea level! How the weather varies over such a short distance will continue to be a mystery to me). Fortunately the wind was not totally out of the question – about 25-30 m.p.h. I estimated.

I had slight qualms because the wing loading of the model is just under 8 oz/sq. ft. but a few hand launches back from the ridge showed that the model at least went forward healthily even in that wind.

As it happened the most difficult part (as usual) was the struggle against the wind to the chosen launch point. The model flew straight and steady with no adjustments needed, even to the trims (my first-ever model to do this, I think).

The controls were very responsive, but the model could be safely left on its own for reasonable periods without needing attention. In fact I was very surprised at the stability and smoothness in fairly rough conditions. With the C G as shown on the plan, the pitch sensitivity was fairly lively but by no means 'hairy'. I would suggest perhaps an extra 1/4 in. forward for early flights.

**Lateral control**

Lateral control was really excellent and the model was a joy to 'throw around the sky'.

On the day in question the elevator trim range permitted steady flight from 'just drifting backwards' to 'good forward progress' – hardly scientific, but that's what it all boils down to!

Rolling and looping manoeuvres are well

**Below; the mechanical mixer supplied is suitable for small servos. Below right; Ray 'scaled up' the mixer to suit his rather larger servos using stout plywood in place of the strong plastic mouldings supplied.**

within the model's capabilities with the former being the easier. I almost came to grief on one flight when I underestimated the height lost in a loop. Fortunately I had started it a long way out, but the lesson was clear: the Geier likes largish looping manoeuvres and these therefore need space.

Landing was simplicity itself – on the day and slope in question I found it easiest just to feed in 'up' trim to the stage where the model was flying with slight negative ground speed. It was then allowed to drift back behind the slope until lift was clearly lost. Down trim was then restored to fly the model positively to the ground. Lateral control was retained throughout (hardly surprising at the airspeed on the day!) and the excellent stability reduces the pilot's 'nervousness' remarkably.

The early flights showed up two weak points in the ABS fuselage. Small vertical cracks started to appear at both the extreme ends of the wing seating. This is obviously where the wing fixing method causes the main pressure on the fuselage and strengthening (or another solution) is obviously necessary because the cracks appeared after only two ordinary landings. Two solutions come to mind: either reinforce the weak areas with fibreglass tape and resin or perhaps try to spread the wing seating more uniformly. The latter appeals to common sense, but in practice it is difficult – so I used the former.

After several enjoyable flights the first day ended on a slightly unhappy note. A sudden period of higher wind speed plus an increase in gusts took the model into the local 'death valley' – from whence none have returned to tell the tale'. I had a fleeting glimpse of the model skirting the hill at a high rate of knots downwind at about five feet from the surface. Progress was halted by a line of low bushes and damage was comparatively light, but sufficient to end the day. Indeed the wing was totally

**Above left; wing construction is quite conventional – the most difficult part, due to the reflex section, was the fitting of the T.E. Above; the inboard wing rib incorporates a 1/8th plywood motor mount for power assisted soaring.**

unscathed, but the ABS fuselage suffered some tears which subsequently responded very well to the right adhesive (an Italian ABS cement left over from another kit review several years ago)!

Next flights were from a bungee launch on the local field. The wind was fresh but not strong. I must admit to being a little worried about this type of launch with a flying wing, but absolutely no difficulty was encountered. Indeed the model was remarkably docile on the line.

Flying, however, proved beyond much doubt that this model is best kept to the slope. It is a fast flyer with a comparatively poor glide angle (compared with a thermal soarer that is). Nevertheless it is still fun to fly even though the flights do not last very long.

**Summary**

The Geier is a very quick model to build and is most attractive due to its unconventional planform. It is a very stable flyer in rough weather and is highly recommended as a 'fun' slope soarer.

The weakest part of the model is the ABS fuselage which certainly requires strengthening with fibreglass tape and resin around the front and rear of the wing seating.

**Manufacturer—Robbe Modellsport.  
Distributor—Eurapex Ltd.  
Kit Price—£21.23 inc. VAT.**

