

The Sprite is rock steady in flight and goes where it is pointed, which made it relatively easy to get some good flying shots



Sprite Thermal E

Top quality in build and performance, the Sprite is reviewed by Martin Bell.

It "floats like a butterfly and stings like a bee"!

Whilst providing an extremely 'sprightly' performance, this latest addition to HyperFlight's range of technically advanced competition electric gliders really surprised me with its exceptional low speed handling characteristics. The Sprite can be a fast flying hotliner or a much more sedate thermal flying model with an exceptionally wide speed range, depending on mood, motor power and control surface settings.

This is yet another outstanding electric soarer from Vladimir's Models and well up to the exceptionally high build standard we have come to expect from this Ukraine based supplier. I already own a Blaster 2 DLG, (discus launch glider) and an electric Blaster as well as a Supra E and an AVA E, and they are all exceptionally well turned out products from the same specialist manufacturer. The Sprite fills the gap between the Blaster at 1.5 metres wingspan and the 3.4 metre Supra, and it does so very well indeed. Not every one is prepared to pay the price for these exquisite hollow moulded models, but they are beautiful products and it's all too easy to fall in love with the design from an aesthetic viewpoint as well as with the performance. I'll get back to the flying later, but to start with let's have a look at what you get for your money!

The Parts List

I collected my model personally from HyperFlight's very well stocked premises in Leamington Spa, but I know from previous experience that when models are posted out they are extremely well packaged in strong cardboard containers, and there should be no worries about damage in transit.

The model as supplied consists of:

The wing – This is a two-piece carbon fibre hollow moulded wing with a substantial carbon joiner

Fuselage pod in Kevlar and carbon fibre boom complete with fin/rudder mount and AMT (all moving tail) mount – These parts are all pre-assembled, so there is no worry about getting the alignment spot on

Canopy hatch – A most useful feature, which enables quick and easy access to the battery and motor

Horizontal stabiliser plus fin and rudder assembly – All very lightweight all moulded components

Accessories bag containing servo connections, wing joiner, wing mounting screws, wing servo covers and fin servo cover

Also supplied are basic assembly and set-up instructions plus templates for setting aileron and flap positions for most flight modes.

Assembly

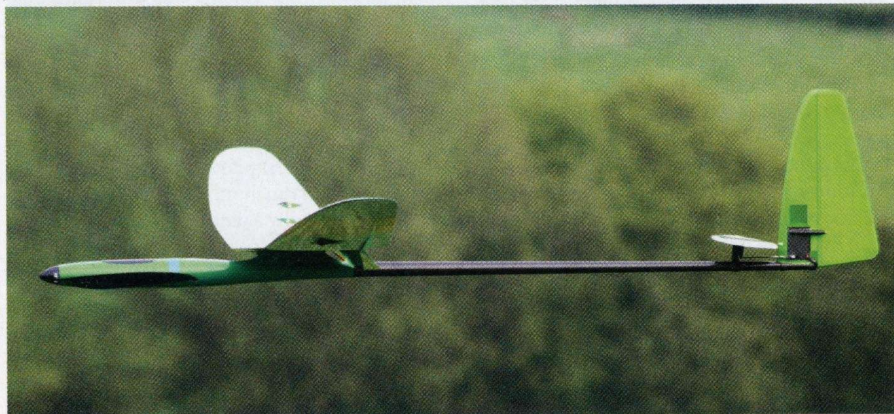
I would like to say that I built this model, but I must admit it's been some time since I could actually use that word. Model assembly is a more realistic term to apply to this model and that is all that is required. I must admit that I miss the satisfaction of designing and building my own. However, like it or not, it would be impossible for anyone to produce model components of the quality found in the Sprite, without very considerable resources and years of experience. Hollow moulded components produce perfect airfoil profiles and a superb surface finish, which is reflected in the final performance of this type of model glider. Furthermore, the Sprite already has all the critical assembly work completed at the factory. There is thus little more to do than fit the motor, speed controller, receiver, servos and battery. With all components to hand, this is little more than 12 hours work. A further 3 or 4 hours for radio and control surface set-up is all that is then needed before the first test flight.

Despite the model being so easy to assemble, you will need some experience with soldering and wiring harness 'design' if the finished model is to be presented in the manner it deserves. I guess it would be possible to use off-the-shelf extension cables etc. for the wiring harness, but to do so will add extra





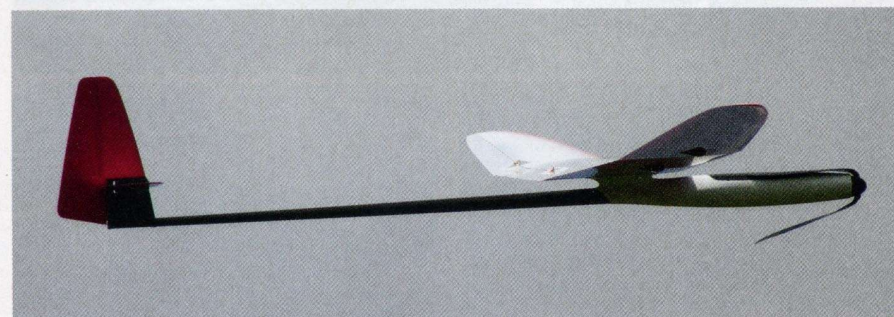
With flaps deployed, the model could be slowed safely to a walking pace, whilst retaining full control



Mark Drela's excellent designs show a solid family resemblance to each other. This is the 3.4 m Supra E



The renowned Blaster 2 and Blaster 2E are basically downscaled versions of the Supra and Sprite



The moulded-in wing pylon reduces interference drag. This is possibly the most obvious common feature of Drela designs

weight, plus every plug and socket introduced into the system would be another point of possible failure.

The Wing

All that is required on the wing panels is to fit the two flap and two aileron servos and their linkages. Having assembled dozens of similar model gliders over many years of glider flying, I have established an installation system that works well for me and has never let me down. I start with servo selection, which is determined by the space available and the servo torque and speed needed in the model type and size being assembled. On the recommendation of a flying colleague, I recently started using Hyperion Atlas Digital Servos in many installations and their HP-DS09AMD servos proved perfectly suited to the Sprite.

A few of the assembly methods I have used for many years may be worth mentioning here.

- 1) Threading the servo's extension cables through the hollow wing panel is very easy if you use a length of thin piano wire. Simply heat shrink the cables together with the piano wire after pushing the piano wire carefully through the wing from the cable exit point at the wing centre to the servo mounting points. The wire together with the cables can then be pulled back through the wing easily and be made to exit through a very small hole drilled in the under wing surface within the pylon mount recess. The photo on the next page probably explains the method better than I have done in words above!

- 2) When fixing the aileron and flap servos in position I always use a servo tester to check and set movements and neutral positions during assembly. This is MUCH easier and more convenient than having to connect your radio equipment. Believe me, once you have set up linkages this way, you will never use any other system as it allows all servos to be set up properly during installation and if you 'do it right' there will be only very minor adjustments required on the transmitter.

- 3) When fitting the wing servos make certain that they are properly supported against the wing main spar. If you don't do this, all the servo loads will be transmitted to the wing skin, which is NOT a good idea!

The Tail End

Fitting the AMT and rudder servos in the carbon servo case, which is already mounted on the tail boom, proved to be quite a struggle. Everything fits just fine, but getting the servos and connections into position is akin to solving a 3-dimensional jigsaw puzzle. The instruction sheets supplied with the Sprite show the servos' positions clearly enough, but actually manoeuvring and





Pylon wing mount is part of fuselage pod and tail boom is ready fitted



Fin and AMT mounting is in carbon fibre and ready fitted to the tail boom



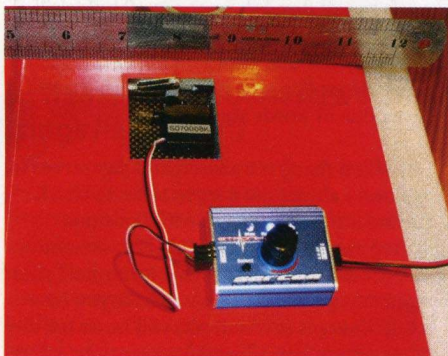
Superb surface finish and close fitting knuckle joint on ailerons and flaps are a feature of the two-piece wing

securing the servos in position is another matter. You can't simply place one servo in position followed by the second servo. Both servos have to be slid into the servo case and then juggled around until they eventually fall into place. After struggling for 20 minutes, I suddenly found both servos in their correct position, but there is no way I can tell you exactly how I solved the puzzle!

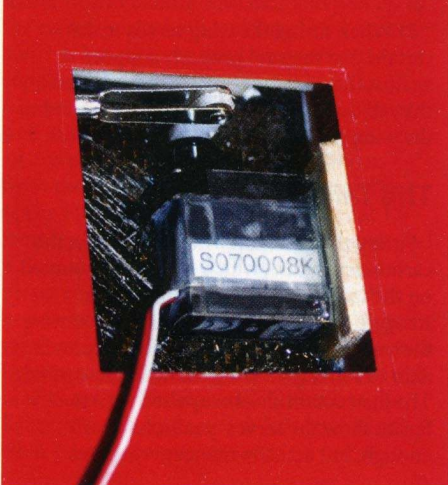
Fitting the fin/rudder assembly and making up push rods was a simple task and the AMT simply slides onto the carbon pivot tube.

Fitting out the Fuselage

The carbon hatch in the fuselage pod makes motor, receiver, speed controller and battery installation straightforward. Wherever possible I always fit the receiver as far back in the fuselage as possible and my Futaba



ABOVE: Using one of the many stand-alone servo testers available makes servo fitting and setting very easy



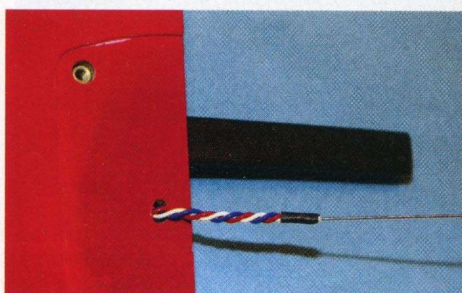
8-channel 2.4 GHz receiver slid neatly into position with only short connections being required from the receiver to the aileron and flap servos. The motor I chose to use was the Hacker A20 6XL with Maxon 4.4:1 gearbox. This motor is one of two specially developed by Hacker last year based on our specific requirements in the UK for a very lightweight drive train, which only has to run at maximum efficiency for the 30 seconds motor run time permitted by the BMFA UK eSoaring Height Limited Competition rules. I chose to run the motor at 350 Watts on a 15" x 10" prop, which produces a near vertical climb out to 200 metres in about 10 seconds.

An 80 Amp speed controller was fitted immediately behind the motor, which left plenty of room for the drive battery. I used a lightweight 2600 mAh 3s LiPo, which had to be positioned as far back in the fuselage as possible to obtain a sensible centre of gravity position, but there is no doubt that smaller and lighter LiPos could be used to better effect. I fitted the 2600 LiPo for convenience, simply because it would easily provide sufficient capacity for a full day's competition flying without re-charging.

The Altimeter Logger and switch we use for competition was easily positioned in the fuselage in a position where it was easily accessible for data download when required.

BELOW LEFT: Once wrapped in magic tape, wing servos can be mounted directly onto carbon inner skin. Note the packing between the back of the servo and the wing main spar, which ensures that the majority of servo loads are transmitted through the spar and not the wing skin

BELOW: Simple method of pulling a servo's extension wiring through the wing to their exit point above the pylon wing mount



Set-up

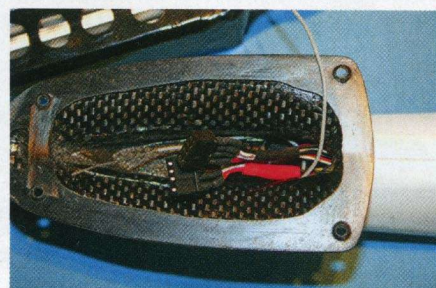
As usual, I spent several hours setting up the Sprite in the different flight modes used by many competition pilots. I set a basic cruise mode, then a launch mode, speed and thermal modes and finally a landing mode incorporating full 'crow' braking. There is certainly not the space available in this review to detail the set-up and trimming methods used. However, the editor has suggested that a complete article covering advanced competition eSoaring model set-up and trimming would be a good idea. You can therefore look forward to this in one of my regular columns in the near future.

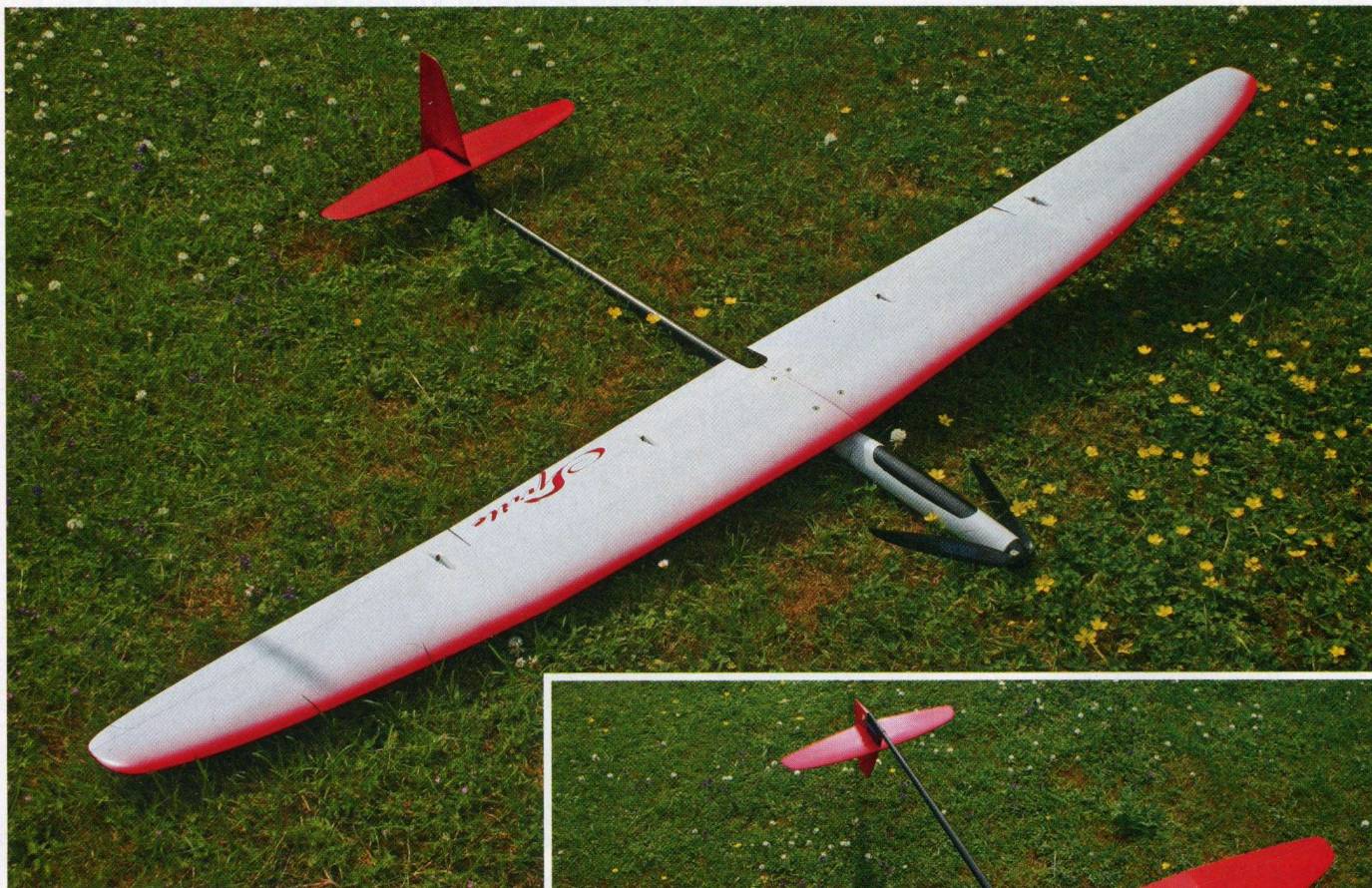
Flying

I must admit that the first flight was something of an anticlimax! I have come to expect most new models to require some adjustment following the first flight and I was prepared to make at least some trim adjustments during and after the first flight. This was not to be the case this time as the Sprite leapt into the air and quickly climbed to 200 metres with hardly a touch on the transmitter. At this safe height I levelled out and was presented with a flat, fast glide, which is exactly what I aim for in cruise mode whilst searching out thermal activity.

I am always prepared to land any new eSoaring model without using the airbrakes as these often take a while to set-up properly at a safe height. However, having tried the full crow braking at a safe height and finding that only a small amount of extra down trim was required, I was happy to make a fully braked

BELOW: Futaba 8-channel 2.4 GHz receiver in position right under wing mount with short connecting leads from the receiver to the aileron and flap servo sockets





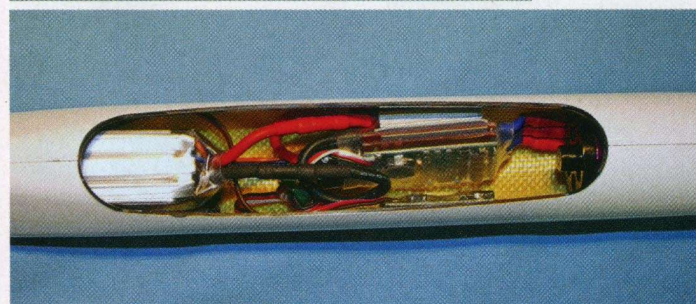
ABOVE: Bright white top surfaces contrast with red underside of wings

RIGHT: Red undersides help visibility at distance



LEFT: Servos eventually slotted into tail servo cover!

BELOW: Hatch makes equipment installation easy



ABOVE: Wing secured from under pylon. The two yellow tubes protect Futaba 2.4 GHz aerials and maintain correct orientation



landing on the very first flight. I guess that the set-up time spent in the workshop, plus a good few years experience may have played a part in this immediate success, but it was still a very pleasant surprise to have a model fly quite so well on its very first outing.

The next flight, which was mainly for the camera wielded by a fellow club member, enabled several long and low passes, both very fast and very slow, to be made, both upright and inverted. As mentioned at the start of this review, the low speed handling with the flaps fully deployed really surprised me. In any wind over about 5 or 6 mph the Sprite could be virtually hovered in the wind under full control and landings could if required be made by way of a vertical descent.

The Sprite Thermal E, has a polyhedral wing with an effective dihedral angle of 5 degrees, making it very easy to thermal, even at the limits of visibility – or so the HyperFlight website tells us. It's true of course, but a 2-metre model will never be as easy to fly in a thermal 1000 metres downwind as a 3 or 4-metre model. Nevertheless, the extreme contrast between the bright white top wing surface and the red underside on the review model helped a great deal at distance.

I've not yet flown the Sprite in a competitive situation, but I am certain that it will produce the results, particularly in windy conditions where the great speed range and penetration of the model will provide a distinct advantage over many models of similar wingspan.

Conclusion

The Sprite is an electric soarer that will fulfil many pilots' needs. It is certainly a model I have fallen in love with and enjoy just drooling over, as well as flying in any conditions that the British weather can produce, from still air to 25 mph winds.

Q&EFI



ABOVE: Twisted yoke keeps propeller flat to fuselage minimising drag

Q&EFI Specification

MODEL INFORMATION

Name: Sprite Thermal E
Manufacturer: Vladimir's Models
Distributor: Hyperflight.co.uk
 123 Radford Road
 Leamington Spa
 Warwickshire CV31 1LG
 United Kingdom
 Tel: +44 (0) 1926 314011
Email: sales@hyperflight.co.uk
Price: £485
Construction: All-moulded

R/C FUNCTIONS

- 1 Rudder
- 2 Elevator
- 3 Ailerons
- 4 Flaps (Crow Mixing)
- 5 Throttle

MODEL SPECIFICATIONS

Wingspan: 2 metres
Length: 1.32 metres
Wing Area: 36.5 dmsq
Flying Weight: 1050 g
Wing Loading: 29.6 g/dmsq (9.9 oz/sq/ft)

Likes

Superb Quality, Great looks,
 Wide Speed Range, Excellent
 Performance
 Very fair value for money.

Niggles

Fine for the experienced builder/pilot
 but, for less experienced builders,
 more detailed assembly and set-up notes
 would be welcome.

