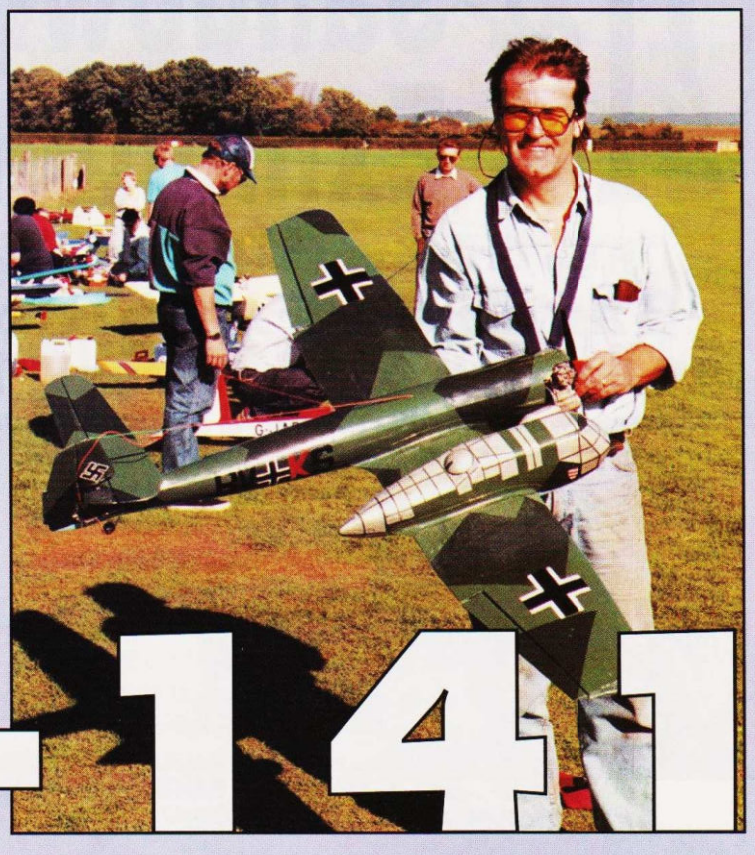
Here's Ken, soaking up the atmosphere of the Nexus Autumn Gala at Old Warden. See you at O.W. in '96, Ken.

BLOHM UND VOSS BV-141



Go asymmetric with Ken Sheppard's 54" wingspan replica of the German light bomber

Love it or hate it, the eccentric layout of the BV-141 is, to say the least, different. It's been on my build list for a long time, awaiting the time that I felt confident enough with my flying ability to handle the anticipated problems with the asymmetric configuration. Perhaps I should have waited a little longer, but more of that later!

The full size aircraft was conceived at a time when aircraft design in Germany tended to be derivative based. Imagine the raised eyebrows and derisory sniggers when the radical design was submitted for government funding. It says a lot for the charisma of the designer, Richard Vogt, that he persuaded B&V to build three prototypes and ten production aircraft, despite Luftwaffe support being denied.

It was, however, a surprisingly fine-handling aircraft and as an observation/light bomber it would probably have been very successful, had B&V been able to overcome the German High Command's prejudice against the unusual. I found the challenge irresistible, to reproduce the character of the original and make it fly well.

Made mainly of blue foam, the prototype model weighs 4.1/2 lbs. With a wing area of 520 sq.ins., the wing loading of 20 ozs./sq.ft. gives it a sprightly performance with an OS40FP.

Design criteria

With regard to scale fidelity, *'sport scale rules OK'*, so I took a few liberties. Larger tail area (scale size is minute), larger nose moment (easier to fit the tank), slightly increased tip dihedral and cockpit glazing painted on - in essence, real cartoon scale. However, it does look good and recreates the flavour of the full-size aircraft. And that's what really counts!

Looking for something which will stand out from the crowd? Then build your very own Blohm & Voss!

Cheap and cheerful!

I used blue foam and brown paper, because it's quicker than a traditional structure and because I had the remnants of a large block of foam to use up, not to mention the reduced costs. Using this method of construction, I can work from sketches rather than proper drawings and can incorporate mods when I finally draw up the design later.

The wing is sparless, with tip panels epoxied to the centre section. Undercarriage loads are taken by a hardwood beam, which also acts as a sub-spar. The brown paper covering, in addition to that of the glass clothed joints, is sufficient to take all flight loads (I haven't had a wing fold yet).

Fit a .30 - .40 motor and you'll find that this light-weight foam flyer can be thrown around just like any other weekend sportster.

Building notes

The motor boom is made up around a 1/4" square balsa longeron box section with liteply doublers from the engine bulkhead to aft of the wing seat. The box section is clad with 3/4" sheet foam; this is carved and sanded to circular section, thinning to oval at the tail end - minimalist stuff, but adequate. The tail feathers, from 1/4" sheet balsa, sit on an elevated balsa tail seat and an aluminium tube with flattened ends supports the tailplane.

The crew pod was carved from a block of blue foam and hollowed out to save a little weight. I didn't bother covering the pod with paper, relying on PVA to seal the surface ready for painting. The lower boom and pod fairings were slotted spanwise to allow fitting and removal of the u/c torsion legs, the gaps being filled with foam off-cuts. This allows the aircraft to be flown with or without the u/c (if you take the latter option, you will need a helper to do the launch - the offset balance makes her tricky to hold one handed, the second hand being needed to steady the r/h wing tip).

For security the fuselage boom is attached to the wing using two dowels at the leading edge and a nylon bolt through the wing at the rear. The pod, not being stressed, locates at the leading edge by one dowel, with a screw plate, aft of the trailing edge, clamping the pod to the wing.

Engine room

The motor is angled at 45°, so that the silencer (standard OS with a mute piece) lies between the boom and the pod (invisible in the air). The cowl is also made from blue foam - very easy to make. Glass fibre cloth was applied to the outside of the cowl and undersides of the fuselage boom and pod, giving protection for landings sans undercarriage! Fuselage to wing fairings are made from stiff card and filler, sealed with PVA.

Finishing

The entire airframe was sealed with brushed-on, thinned PVA. Paint using Humbrol enamels in a random splinter camouflage (it's sports scale remember), then mask up the pod glazing and black crosses (or use black Fablon). Fuel proof, balance where shown, not forgetting lateral balance (span-wise) to minimise asymmetric effects. It works, so do it! I cannot emphasise this too much, so make sure you get it right.

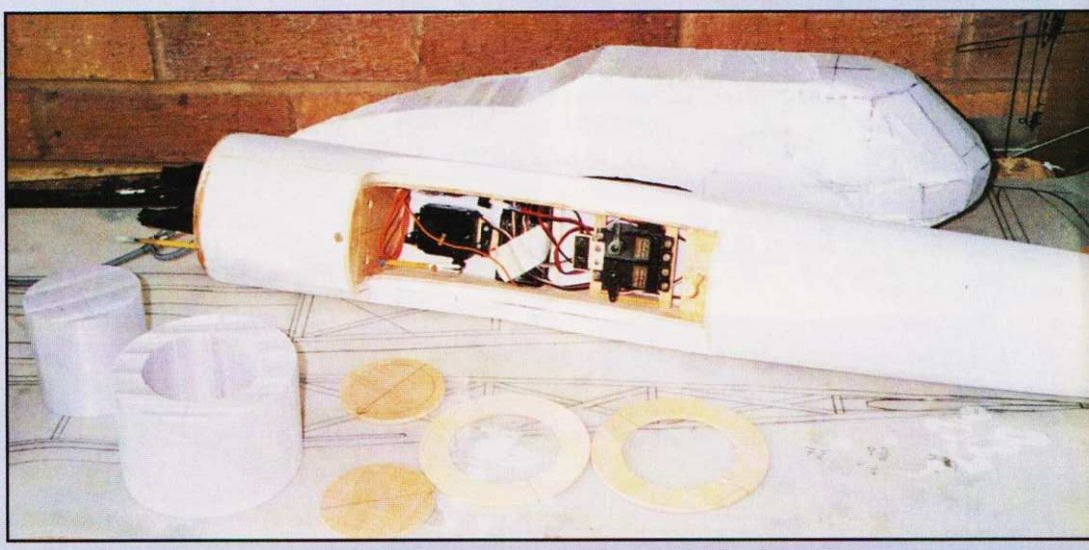
So there we are, ready for first flight. One last thing to do before leaving for the club field. Think of some witty answers to the inevitable comments like, *"Run out of wood, did we?"* or, *"Did you stick the plan together wrong?"* It's a real conversation piece, encouraging the natural wit(?) of your club mates.

Flying

The calculated C.G. was too far back, with the result that after a short run (it tracks straight with no rudder input) it leapt into the air and the fight was on to keep it up there! The left wing was too heavy (wrong lateral balance!) and maximum right aileron trim was required to keep her level. Real seat of the pants flying! Having survived the hectic first two minutes, the rest of the flight was relatively enjoyable.

Half throttle in a light breeze gave a comfortable speed. She tended to screw out of a loop, going over the top, as one would expect with the lateral balance offset. Rolls to left and right were possible (at a safe height), although to the right they tended to be very barrelly due to the excessive right aileron trim. The landing, however, was a cinch. Closing the throttle on the approach, she settled very steadily, with a perfect roll out to boot!

After rebalancing, the second flight was much better and thoroughly enjoyable, with only a slight screw out in the loop remaining. Stall turns and inverted flight were thrown in. Very unrealistic, but lots of fun! Fun that is until I tried to stop the screw out at the top of the loop with a squirt of rudder. Result? An instant inverted flat spin - the flattest spin I have ever seen! I even had time to admire it, before working out how to recover her, so slow was the rate of descent. I actually considered letting her come down as she was, figuring that the



The fuselage parts are roughly carved to shape before final finishing with sandpaper. The wings can be foam cut in the usual way.

DATAFILE

Plan Specifications

Name	Blohm & Voss BV141
Designed By	Ken Sheppard
Aircraft Type	Scale light bomber
Wingspan	54"
Wing Chord	10.2"
Wing Area	520 sq.ins.
Aerofoil	NACA 2412
Dihedral At Each Tip	2.0625"
Fuselage Length	42.3/4"
Tailplane Span	16"
Tailplane Area	100 sq.ins.
Tailplane Section	Flat plate
Fin Height	7"
Engine Range	30-.40cu.in.two stroke
Fuel Tank	SLEC Yellow
Rec. Number of Channels	Four
Control Functions	Aileron, throttle, elevator, rudder
C.G. (from L.E.)	2.25"
Elevator Throws	+/- 1"
Aileron Throws	+/- 3/4"
Rudder Throws	+/- 1.1/4"
Sidethrust	None
Downthrust.	None

Materials Used in Construction

Fuselage	Blue foam sheet on balsa strip box
Wing	Blue foam & brown paper
Tail Surfaces	Sheet balsa
Weight, Ready to Fly	4.1/2 lbs.
Wing Loading	20 ozs/sq.ft.

worst that could happen was a fin rebuild but sense prevailed, so pushing in a little up (to get the nose down) and a boot of opposite rudder (to stop the rotation) and... stone me, it worked! Out she came, after half a turn. I had to get it down quick before the shakes set in! My big mistake was to admit to those who had witnessed it that it was unintentional - it looked so good.

Flight test mods

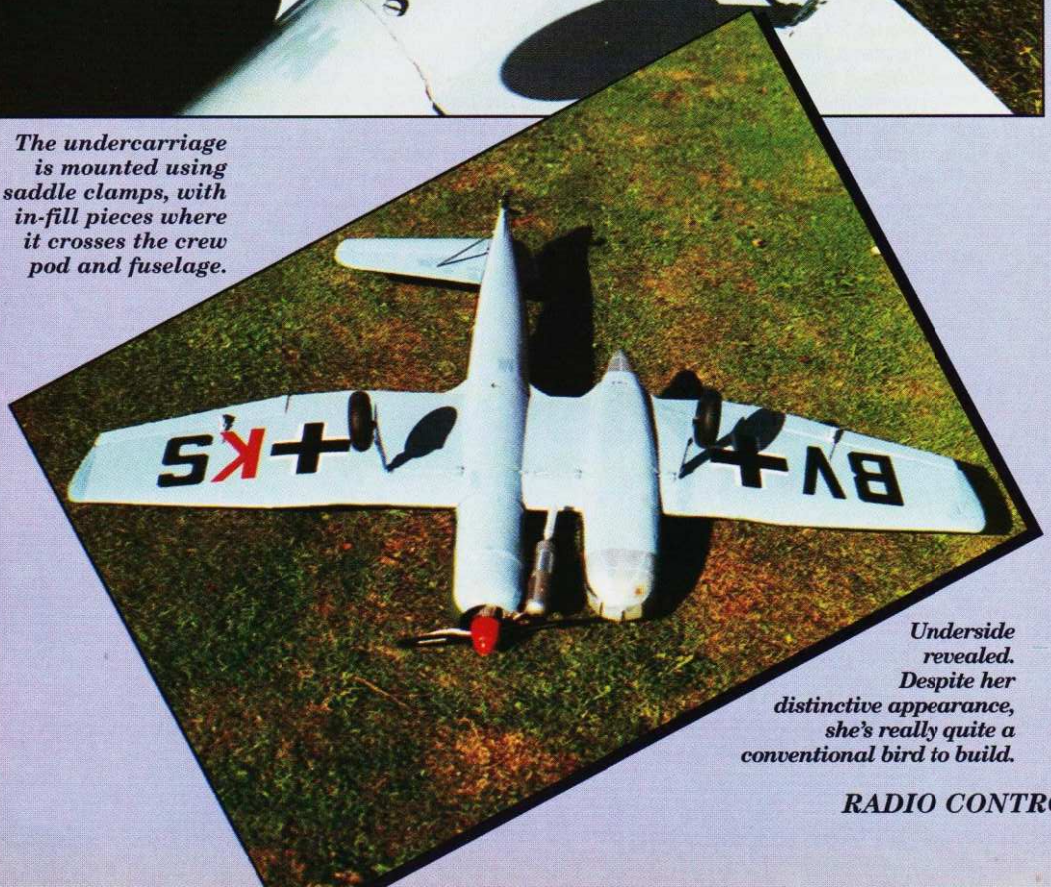
Subsequent modifications to improve handling were as follows (all shown on the plan):

- Increase the tailplane area to dampen pitch twitchiness.
- Sidethrust adjustment and removal of wingtip weight to cure screwing out in loops.
- Longer undercarriage legs, with shorter torsion arms to reduce noseover (we grow lumpy grass at our flying strip).

At the moment I have done nothing with the fin size to try to rectify the ease of entry into a spin, mainly because I haven't as yet summoned the courage to re-enter that particular area of the flight envelope to find out what really happens!

This really is the sharp edge of model design development and is what makes it so interesting. He who dares... makes it difficult for himself! So if you decide to build one, you too can take part in the flight development programme by increasing the fin for yourself. Don't forget to let me know how you get on.

The undercarriage is mounted using saddle clamps, with in-fill pieces where it crosses the crew pod and fuselage.



Underside revealed. Despite her distinctive appearance, she's really quite a conventional bird to build.

Post Script

Having achieved what I thought was a unique model of a unique aircraft, I took it to the Nexus Autumn Gala at Old Warden, only to find a second BV-141 sitting on the flight line. This model had been scaled up from a rubber plan by a very friendly modeller from Croydon. We were lucky to be able to fly one slot together and the sight of two BV-141s chasing around, trying to achieve some kind of formation in the blustery wind, was a memorable occasion for me.

So, if you want something different, which will aerobat just like your weekend sports flyer, with a flat, inverted spin that has to be seen to be believed (make sure you know how to get out of it before trying it!) and which always creates interest and comment, Blohm and Voss it and go asymmetric! ●