Being Biggles

***Steve Slater** tells the story of a BE-2c which is not quite 100 years old but has a history of its own*

In May 2011, an Edwardian silhouette graced the skies above Sywell aerodrome in Northamptonshire. 'Biggles Biplane', a unique replica of a 1914 BE-2c observation aircraft, made its first flight after a six-year-long restoration, allowing owners Steve Slater and Matthew Boddington to fly an aeroplane that might have been flown by Biggles himself.

'Biggles Biplane' was built at Sywell in 1969 as a film replica, designed to look and fly in an identical manner to Britain's – and the world's – first purpose-designed military aeroplane. It was initially commissioned by Universal Studios for a planned big-budget movie, 'Biggles Sweeps the Skies', based on the books by Captain W.E. Johns.

The original BE-2 was one of the most-used biplanes of the First World War and was typical of the types flown by Johns, who in 1918 became an instructor and light bomber pilot, rather than flying the Sopwith Camel fighters of his fictional hero.

The replica was built by Matthew's father, Sywell-based engineer Charles Boddington, as one a fleet of aircraft for the Biggles film, which it was hoped would emulate previous box office hits such as 'The Blue Max' and 'Those Magnificent Men in Their Flying Machines'. Sadly, however, the Biggles film was canned before filming was even started.

The aeroplane was shipped to America and sold to a WW1 'flying circus'. It made its last flight in the USA on June 14th 1977. Trying to force the aeroplane to climb too steeply on


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a hot, still afternoon in Wisconsin, the pilot lost control and spun into the ground from around 500 feet. Thankfully he escaped with just a broken leg.

The remains were stored by an American Tiger Moth owner, Bill King, who hung them in the rafters of his shed, hoping they may provide some useful parts for his own aircraft.

The BE-2 was effectively lost until late 2004 when it was spotted by Sywell-based Tiger Moth owner Chris Parker, who happened to be visiting Bill King in the USA. Bill King agreed to part with the aircraft only because of the connection of the Boddington family. In 2005, Steve and Matthew flew to New York to bring the remains home.

"Right from the start of the restoration we made a commitment to re-using as many original parts as possible, commensurate with safety" says Matt. "It's been very time consuming, but one of the beauties of the BE-2 is that it is a very simple design and doesn't require high-tech materials."

Flying the BE-2

The original BE-2 was designed by Geoffrey de Havilland for the Royal Aircraft Factory in 1912, therefore the design is shortly to become a century old. At the time it was at the cutting edge of available technology and the world's first naturally stable aeroplane.

Earlier designs such as the Bleriot and Boxkite are unstable in all three axes, most particularly in roll. The BE was designed for aerial observation and its ability to be flown hands-off allowed pilots to sketch military dispositions on a specially-developed drawing board in the cockpit, in the days preceding aerial photography.

For those of us trained on more contemporary machinery, the BE-2 replica certainly poses a challenge. Starting the de Havilland Gipsy Major 10.1, which is specially modified to run in an upright configuration, is a little different from merely shouting "clear prop" and turning a key. It is most definitely a two-person job.

First of all, one climbs onto a conveniently placed ledge on the undercarriage, then balances on the large-diameter mainwheel to hold down a brass button on the carburettor and manually pump fuel to flood the inlet manifold. When surplus fuel begins to drip from an overflow you climb down, taking care not to trip over the odd bracing wire, and head for the scary end.

With the pilot strapped into the rear cockpit (the front cockpit is right on the centre of gravity, therefore the presence or otherwise of its occupant doesn't affect the c of g) the person outside of the cockpit is in charge because they are hand-swinging the potentially lethal eight foot six inch propeller.

Ensuring that the chocks are in place, the throttle is closed and that the magnetos are switched off, one steps between the long ash undercarriage skids designed, like the large diameter main wheels, to prevent nosing over on the rough ground of early WW1 airfields. Firmly grasping the propeller, but taking care not to loop one's fingers over the trailing edge in case of a kick-back, one pulls the blades through eight compressions.

That completed, one ensures again that chocks are in place and the throttle set by the pilot, and calls 'contact', at the same time giving a thumbs-up signal which should be returned by the pilot once the magneto switches are on. A firm pull on the blade, while at the same time stepping a pace backwards, should see the engine rumble into life.

Once up and running, around four minutes is required for the two gallons of engine oil to warm to working temperature, before a run-up and magneto check is carried out while the aeroplane is still chocked. The reason? No brakes!

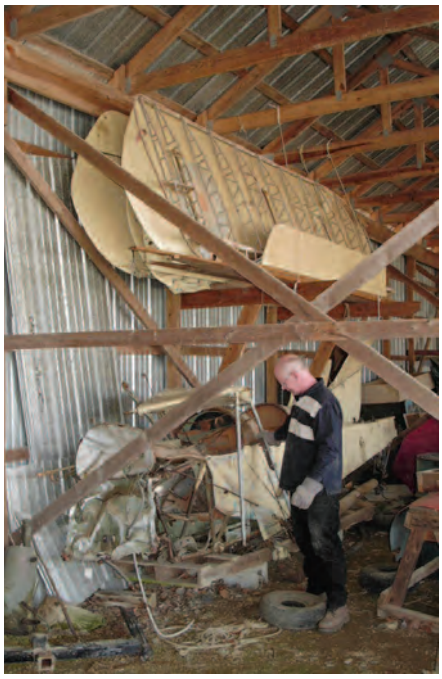
'Chocks away' therefore assumes a new

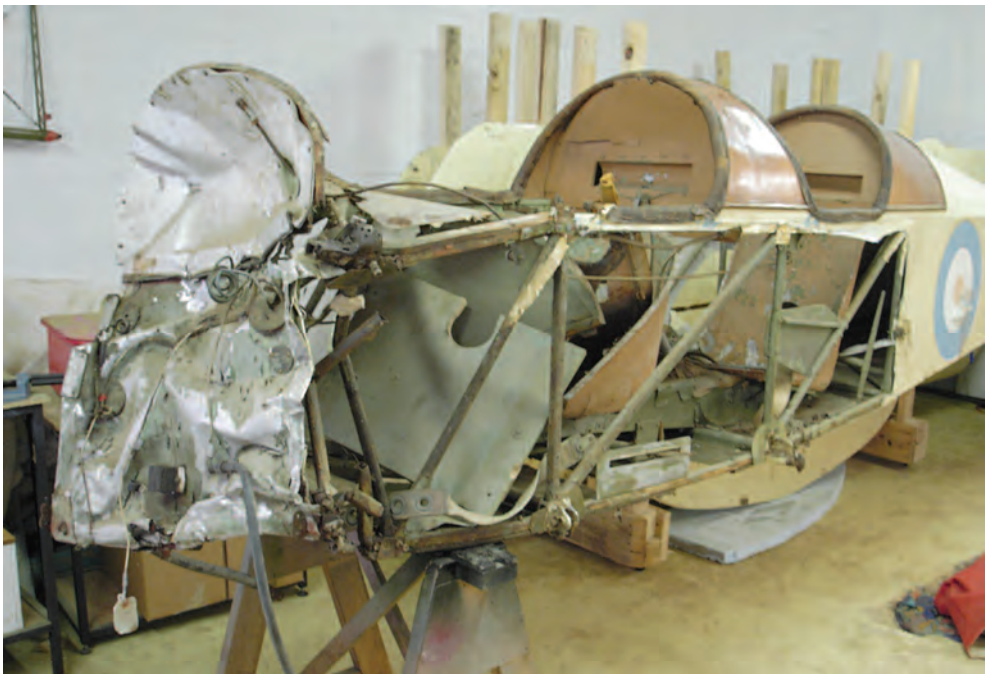
Far left: 1969 press cutting tells the story of the original build

Left: the world's first purpose-designed warplane photographed in Amiens 98 years ago

Above: a BE-2 in flight over the Royal Army Aircraft factory, Farnborough, in 1913

Above right: original builder Charles Boddington with his aircraft in 1969



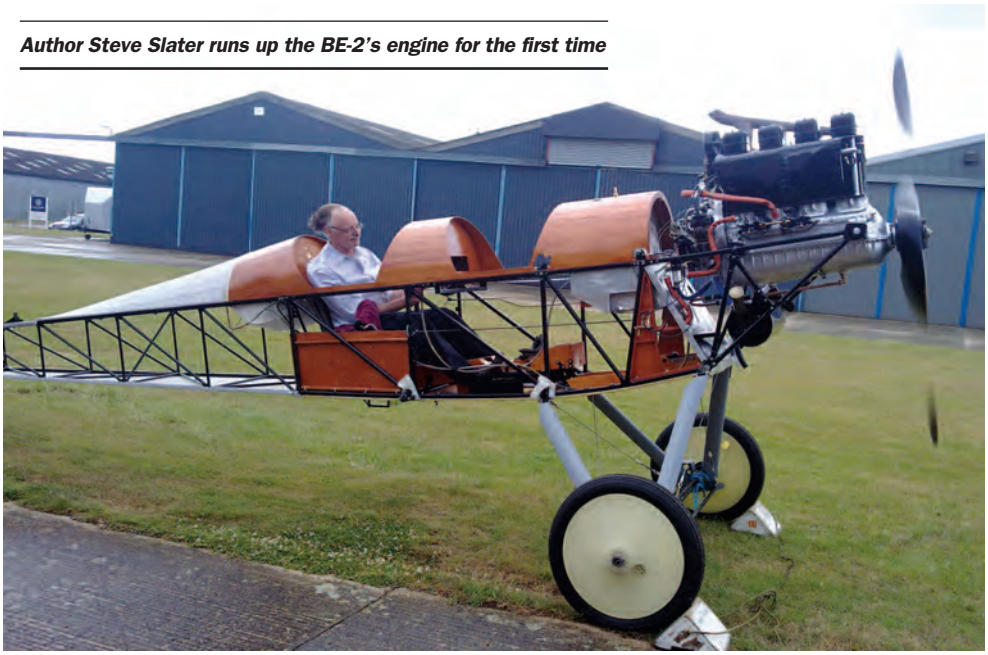


significance, although the steel-shod wooden tail skid acts as an effective brake at lower speeds while taxying on grass. Manoeuvring is carried out by using a burst of power to generate airflow over the rudder and providing a little forward stick to unload the tailskid.

In tighter confines a 'wing-walker' running alongside the aeroplane and exerting pressure on the appropriate leading edge can act as both steering and brake. They are also a useful set of added eyes, as the view ahead is restricted by struts, wires and the upright engine.

In common with others of its era, the BE-2c was designed for operating from open fields, into wind. The aircraft's crosswind tolerance is limited. To zero. The aircraft's high centre of gravity and relatively inefficient ailerons will mean that any drift on take-off or landing could result in a wing lifting uncontrollably. Bamboo

Author Steve Slater runs up the BE-2's engine for the first time



Above: sorry state – the BE-2 as she was found in a hangar in upstate New York in 1999
Top right: almost ready to fly away – slight accident damage
Right: Matthew Boddington and Steve Slater in 2009 during the rebuild

hoops are placed under the wing tips as protection, but a major swing would probably lead to the wire-spoked wheels collapsing too.

Normally, taking off from the downwind edge of a grass runway and pointing into the wind will see the biplane airborne by the centre-line, climbing out at 55-60 mph and cruising at a leisurely 65. Handling is best described as 'stately'. As with many older aeroplanes, the ailerons are less effective than the rudder and elevator, so one effectively initiates the turn with rudder, then balances the aircraft with aileron input. Bank angles of more than 30 degrees are normally avoided as the

aeroplane is likely to lose airspeed rapidly, but its only real design quirk is that the rudder isn't fully self-centring. For a near-100 year-old design, that's pretty impressive.

Given its role as an observation aircraft, unsurprisingly the view from both cockpits is good. Navigation is by traditional compass and stopwatch, although in today's crowded airspace, we do admit to cheating, with an excellent Airbox Clarity GPS and airspace alert as well as a radio hidden in a wooden box in the rear cockpit.

Landing is again strictly into wind and most definitely never on a tarmac runway, as the aircraft needs the purchase of its tail-skid on grass to hold it straight. The approach is normally made deliberately high, with a side-slip allowing a steeper rate of descent and improving forward visibility past the tall engine which dominates the forward view.

Although the aeroplane stalls at a mere 40mph, approach speed is normally held at 55-60 mph all the way to the ground. If

Above: BE-2 panel – modern oil pressure gauge (bottom right) is a temporary fixture
Left: starter takes care not to loop fingers over the trailing edge for fear of kick-back
This photo: the aircraft's crosswind tolerance is limited – to zero

Biggles flies again

one gets 'behind the drag curve' with this aeroplane, the drag from plethora of struts and bracing means it won't accelerate again very quickly and the result will be a high rate of descent and heavy landing. Of course as ever with any taildragger, the landing isn't over till the aeroplane is safely back in the hangar!

AOPA Past President David Ogilvy once said that the pressures of flying some of the precious Shuttleworth Trust veterans meant one could only really savour the experience when in the bar afterwards. We are delighted that the BE-2c is allowing us to savour 'Being Biggles' every time we are aloft!

**Steve Slater, a motor racing writer and commentator, is Chairman of the Vintage Aircraft Cluband has owned a VW-powered Luton Minor single-seater, a Hindustan Pushpak (an Indian-built Aeronca) and currently flies Tipsy Trainer G-AISA.* ■