



> Rupert Wasey's Gloucestershire-based company Hercules Propellers has recently completed the manufacture of a pair of propellers for one of the most intriguing replica aircraft builds ever undertaken. Scott (Scotty) E Wilson of Tulsa, Oklahoma, has established a small team that in little over three years is well on the way to completing a full-scale, flying replica of what he calls an 'Art Deco masterpiece' – the Bugatti P100, a truly revolutionary aircraft that was prevented from flying due to the onset of WWII.

The Bugatti name is primarily linked to a series of successful French racing cars that achieved many race wins during the interwar years: the Type 35, typically painted in French blue, being much appreciated by connoisseurs. The company also built beautiful road cars and a quite spectacular limousine, the famed Bugatti Royale, which was a commercial failure but is now highly prized, there being just six of the 12.7 litre, 7,000lb behemoths ever built (one of which is in the Haynes Motor Museum at Sparkford in Somerset). In all, only around 8,000 cars are reputed to have been built in the forty-year history of the marque.

Company founder Ettore Bugatti was born in Milan in 1881. In 1909, having built a number of one-off vehicles and designed cars for other manufacturers, he established his own car plant in what was then Germany, in Molsheim, Alsace. Following WWI, the region became part of France

Rupert Wasey of Hercules Propellers with the Bugatti 100P Replica propellers

and ultimately Bugatti became a naturalised, and very patriotic, Frenchman. Bugatti died in 1947, and though the company lingered on for several years, it ultimately folded and, having changed hands a few times, eventually became the property of the VW group. To the latest generation of car enthusiasts, the name is synonymous with only the contemporary, high-performance Veyron, which celebrates Pierre Veyron who, accompanied by Jean-Pierre Wimille, won Bugatti's second Le Mans 24-hour victory in 1929 and nicely links today's product with the original company.

As an aside, two of Bugatti's champion drivers, William Grover-Williams and Robert Benoist, were trained by the British Special Operations Executive as resistance fighters and parachuted back into France. Sadly, they were eventually captured and executed by the Nazis.

Bugatti's initial foray into aeronautics came during the Great War, when he designed a 250hp straight eight, two of which ultimately became a 500hp U 16; neither engine was a success, indeed there is some doubt whether either ever took to the air. Bugatti meddled with aero engine designs throughout the company's history, one such design ultimately powering a rail car that sold in sufficient numbers to keep the factory in work, but none of these aero engine designs were successful.

In the mid 1930s, Bugatti enlisted the help of Belgian aeronautical engineer Louis de Monge to design an aircraft with a single purpose – to set a world speed record. There were discussions about entering the famous German Coupe Deutsch race, but the Bugatti/de Monge team never committed to building a race version of the aircraft. While there was significant French Government funding, there was never a fighter version planned or built either (a persistent myth for which there is no evidence).

Fitted with two 450hp straight eight Bugatti 4.9 litre racing engines in the rear fuselage, driving contra-rotating props via shafts to a gearbox in the nose, this sleek, retractable design was revolutionary in the extreme, featuring forward-swept wings and a Y tail, the leading-edges of which were configured as the air intakes for the engine coolant radiators.

de Monge employed a lightweight but strong balsa/hardwood composite skin well before de Havilland built the Mosquito, and his drag-reducing 'Meredith-Effect' internal radiator predates the Mustang's design by three years. Further, de Monge planned to equip the 100P with an automatically-functioning flap-and-speed-brake system, but that was never installed on the aircraft.

The aeroplane did evolve over time to what we would now call a technology demonstrator, with features such as zero-drag cooling and automatically-positioned flaps.

Built above a Parisian furniture store, the 100P was all but complete as the dark clouds

THE BLUE DREAM

The Bugatti 100P replica has props created by Hercules Propellers.
Brian Hope explains

of war swept across Europe. When the German occupation of Paris became imminent in mid-1940, the 100P was moved out of the city and stored in a barn, where it remained all but forgotten for 30 years. Post WWII, de Monge had emigrated to the US, and the advanced performance the aircraft promised had been overtaken by developments spurred on by war; for Bugatti the initiative had been lost and he was anyway trying to re-establish an automobile manufacturing plant, his Molsheim factory having been destroyed in the conflict.

Once rediscovered, the aircraft was shipped to the US, changed hands, had some restoration work carried out and then remained in storage for another protracted period before being donated to the EAA. Restored to a non-flying condition, it is now exhibited in the EAA AirVenture Museum at Oshkosh, Wisconsin.

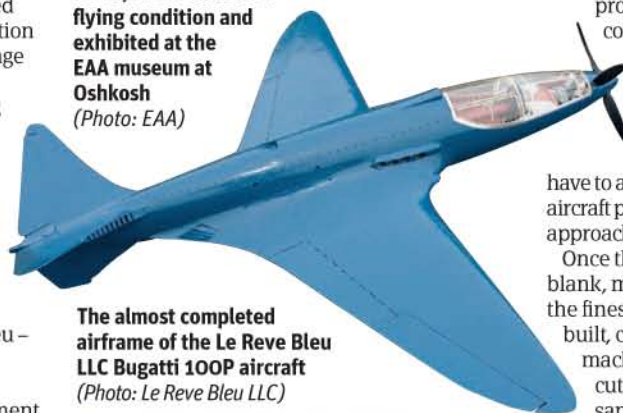
And that would have been the end of the story - the revolutionary and sole Bugatti aircraft that held such promise but never actually flew - but for Scotty Wilson who, in January 2009, decided to take on the challenge of building a flying replica and formed a small company called Le Reve Bleu - The Blue Dream.

There were no complete plans, but the original aircraft was available for measurement and now, just over three years later, the airframe is nearing completion and three British companies are involved in working on the powertrain. Apart from Hercules propellers, Radical Performance Engines will be providing



Left: the Hercules Propellers own designed and built, computer-controlled propeller-carving machine (Photo: Hercules Propellers)

Below: the original Bugatti 100P, restored to non-flying condition and exhibited at the EAA museum at Oshkosh (Photo: EAA)



The almost completed airframe of the Le Reve Bleu LLC Bugatti 100P aircraft (Photo: Le Reve Bleu LLC)



the two engines, 260hp four-cylinder 1,500cc engines, based on the Suzuki GSX-R Hayabusa. And J Lawson Modelmakers Ltd has designed the gearbox and is in the process of manufacturing it.

Rupert Wasey founded Hercules Propellers in 2008 to fill a gap in the market for bespoke propellers. He uses a very sophisticated computer software package to design the optimum propeller for each customer's individual aircraft, based on a large number of parameters such as intended cruise speed, engine rpm and power, etc. You only have to ask a Hercules Propeller owner how his aircraft performs to realise that this hi-tech design approach is reaping some very positive results. Once the design is settled, the propeller blank, made from four or five laminations of the finest beech, is clamped into a purpose-built, computer-controlled prop-carving machine that roughs out, and then finely cuts the blade form such that only light sanding is required before the propeller is ready for its protective epoxy leading-edge and final finish.

Once the 100P Replica has flown, there are plans to bring it on a European tour - now that really will be something to see! ■